

# Fort Calhoun Station

## 2005 NRC Hot License Exam Outline

Submitted to Mr. Tom McKernon, Chief Examiner

Scheduled Exam Dates : 7/8/05 - 7/15/05

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- RO Written Exam Sample Plan (ES-401-2 and ES-401-3 forms, standard and enhanced versions)
- SRO Written Exam Sample Plan (ES-401-2 and ES-401-3 forms, standard and enhanced versions)
- Record of Rejected K/A's (enhanced form for ES-401-4)

### Administrative Topics Outline

- Form ES-301-1 (RO)
- Form ES-301-1 (SRO)

### Walk-Through Test Outline

- RO Form ES-301-2
- SRO-I Form ES-301-2
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### Simulator Scenario Outline

- ES-D-1 forms for all scenarios
- ES-301-5 forms
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Copy of Form ES 201 -3 security agreement as it exists to date

Form ES-201-2 Examination Outline Quality Checklist

## Preliminary Schedule for FCS Exam

### Friday - 07/08/05

0800- 1300 All take written exam

### Monday - 07/11/05

1300 – 1500 Simulator Scenario One ( USRO1, RO1, RO3)  
1500 – 1700 Simulator Scenario One ( USRO2, RO4, RO6)  
1700 – 1900 Simulator Scenario One ( ISRO2, ISRO1, ISRO3)

### Tuesday - 07/12/05

0700 – 0900 Simulator Scenario Two (USRO1, RO2, RO1)  
0900 – 1100 Simulator Scenario Two (USRO2, RO5, RO4)  
1100 – 1200 Lunch  
1200 – 1500 RO Admin  
1500 – 1700 Simulator Scenario Two (ISRO3, ISRO2, ISRO1)

### Wednesday - 07/13/05

0700 – 0900 Simulator Scenario Three (USRO1, RO3, RO2)  
0900 – 1100 Simulator Scenario Three (USRO2, RO6, RO5)  
1100 – 1200 Lunch  
1200 – 1500 SRO Admin  
1500 – 1700 Simulator Scenario Three (ISRO1, ISRO3, ISRO2)

### Thursday - 07/14/05

0700 – 0900 Simulator JPM set 1 (RO1, RO2)  
0900 – 1100 Simulator JPM set 1 (RO3, RO4)  
1100 - 1200 Lunch  
1200 - 1400 Simulator JPM set 1 (RO5, RO6)  
1400 - 1600 Simulator JPM set 1 (USRO1, USRO2)  
1600 – 1800 Simulator JPM set 1 (ISRO1, ISRO2)  
1800 – 1900 Simulator JPM set 1 (ISRO3)

Friday - 07/15/05

|  |                              |
|--|------------------------------|
| 0700 – 0900 Simulator JPM set 1 (RO1, RO2)     | In-Plant JPMs (USRO1, USRO2) |
| 0900 – 1100 Simulator JPM set 1 (RO3, RO4)     | In-Plant JPMs (RO1, RO2)     |
| 1100 - 1200 Lunch                              |                              |
| 1200 - 1400 Simulator JPM set 1 (RO5, RO6)     | In-Plant JPMs (RO3, RO4)     |
| 1400 – 1600 Simulator JPM set 1 (ISRO1, ISRO2) | In-Plant JPMs (RO5, RO6)     |
| 1600 – 1800 Simulator JPM set 1 (ISRO3)        | In Plant JPMs (ISRO1, ISRO2) |
| 1800 – 1900                                    | In-Plant JPMs (ISRO3)        |

## Outline Development for 7/2005 Fort Calhoun NRC Exam

This exam outline was developed in accordance with NUREG-1021, Rev 9.

### Written Exam Outline

Fort Calhoun has developed a methodology to ensure that the selection of K/A items for the written exam is random and unbiased. The written exam outline was developed using a Microsoft Access database. All K/A items from NUREG-1122, Rev 2 are contained in a table within the database. Items which clearly are not applicable to Fort Calhoun are assigned a flag to prevent them from being sampled. Flagged items are selected using guidance provided in ES-401, attachment 2. Flagged items include the Ice Condenser System K/A's, Non-Combustion Engineering vender specific EPE/APE K/A's, and K/A's only associated with multi-unit plants.

The sample plan is developed as follows:

- A module is run that assigns a random number to each item in the K/A catalog. This module uses a "randomize" routine to ensure that the pattern of random numbers is unique.
- A query is run that presents K/A items belonging to the tier and group being sampled ordered by their associated random number. Minimum and maximum numbers are assigned to topics and categories to prevent over and under sampling. Items are entered in the sample plan as ordered, subject to the pre-established minimums and maximums. If a sampled K/A item has an importance value less than 2.5 with no FCS specific priority, is not applicable to Fort Calhoun or not appropriate for the written exam, it will be tagged and included in the Record of Rejected K/A's along with the reason for rejection. This sampling process is repeated until the tier/group has the required number of items.
- This procedure is repeated for each tier/group combination.
- Additional items are selected for the SRO only questions to meet the SRO tier/group requirements. These items are also presented in order of their associated random number. An additional requirement, for this step, is that the selected K/A items must be associated with 10 CFR 55.43 items.

In addition to the ES-401-2 and ES-401-3 forms, a more detailed listing of the selected K/A item including the full text and a cross reference to the applicable 10 CFR 55.41/43/45 items is provided.

## Operating Exam Outline

The Fort Calhoun “PRA Summary Notebook” was used as a resource to ensure that risk-significant items identified in the Fort Calhoun IPE are reflected in the exam. The following risk significant initiating events are included in the operating exams:

- Steam Generator Tube Rupture
- Station Blackout
- Loss of Coolant Accident

It also resulted in the following risk-significant operator actions being evaluated:

- Manually opening a closed breaker to allow D/G to power vital bus.
- Minimizing DC loads following a loss of offsite power.
- Emergency Boration
- Emergency Start of a Diesel-Generator
- Determination of minimum HPSI flow in response to a clogged containment sump strainer

All four simulator scenarios are new.

## Audit Exam

There will be no duplication of questions, scenarios, system JPMs or administrative JPMs between the audit exam and the license exam.

| Facility: Fort Calhoun  |             | Date of Exam: 07/11/05 |     |     |     |     |     |     |     |     |     |     |                 |    |    |       |    |   |
|---|-------------|------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------|----|----|-------|----|---|
| 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 |     |     | 4   | 3   | N/A |     |     | 4               | 18 |    |       | 6  |   |
|   | 2           | 1                      | 3   | 1   | N/A |     |     | 2   | 0   | N/A |     |     | 2               | 9  |    |       | 4  |   |
|   | Tier Totals | 3                      | 4   | 5   | N/A |     |     | 6   | 3   | N/A |     |     | 6               | 27 |    |       | 10 |   |
| 2. Plant Systems  | 1           | 3                      | 1   | 2   | 3   | 2   | 1   | 3   | 3   | 4   | 3   | 3   | 28              |    |    | 5     |    |   |
|   | 2           | 2                      | 1   | 1   | 0   | 0   | 2   | 1   | 1   | 0   | 1   | 1   | 10              |    |    | 3     |    |   |
|   | Tier Totals | 5                      | 2   | 3   | 3   | 2   | 3   | 4   | 4   | 4   | 4   | 4   | 38              |    |    | 8     |    |   |
| 3. Generic Knowledge and Abilities Categories   |             |                        |     | 1   |     | 2   |     | 3   |     | 4   |     | 10  |                 | 1  | 2  | 3     | 4  | 7 |
|   |             |                        |     | 3   |     | 2   |     | 2   |     | 3   |     |     |                 |    |    |       |    |   |
| <p>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).</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>6. Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.</p> <p>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.</p> <p>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. Use duplicate pages for RO and SRO-only exams.</p> <p>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.</p> |             |                        |     |     |     |     |     |     |     |     |     |     |                 |    |    |       |    |   |

**PWR RO Examination Outline**

Printed: 03/29/2005

Facility: Fort Calhoun

ES - 401

**Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1**

**Form ES-401-2**

| <b>E/APE # / Name / Safety Function</b>                    | <b>K1</b> | <b>K2</b> | <b>K3</b> | <b>A1</b> | <b>A2</b> | <b>G</b> | <b>KA Topic</b>   | <b>Imp.</b> | <b>Points</b> |
|--|-----------|-----------|-----------|-----------|-----------|----------|---|-------------|---------------|
| 000008 Pressurizer Vapor Space Accident / 3                |           |           |           | X         |           |          | AA1.06 - Control of PZR level   | 3.6         | 1             |
| 000009 Small Break LOCA / 3                                |           |           |           |           | X         |          | EA2.08 - Letdown isolation valve position indication  | 2.9*        | 1             |
| 000011 Large Break LOCA / 3                                |           |           |           |           |           | X        | 2.4.6 - Knowledge symptom based EOP mitigation strategies.  | 3.1         | 1             |
| 000015 RCP Malfunctions / 4                                |           |           |           | X         |           |          | AA1.16 - Low-power reactor trip block status lights   | 3.2*        | 1             |
| 000022 Loss of Rx Coolant Makeup / 2                       |           |           |           | X         |           |          | AA1.03 - PZR level trend  | 3.2         | 1             |
| 000025 Loss of RHR System / 4                              |           | X         |           |           |           |          | AK2.03 - Service water or closed cooling water pumps  | 2.7         | 1             |
| 000026 Loss of Component Cooling Water / 8                 |           |           | X         |           |           |          | AK3.02 - The automatic actions (alignments) within the CCWS resulting from the actuation of the ESFAS   | 3.6         | 1             |
| 000027 Pressurizer Pressure Control System Malfunction / 3 |           |           |           |           | X         |          | AA2.07 - Makeup flow indication   | 3.1         | 1             |
| 000038 Steam Gen. Tube Rupture / 3                         | X         |           |           |           |           |          | EK1.03 - Natural circulation  | 3.9         | 1             |
| 000054 Loss of Main Feedwater / 4                          |           |           |           |           |           | X        | 2.4.50 - Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.   | 3.3         | 1             |
| 000055 Station Blackout / 6                                |           |           |           |           |           | X        | 2.1.23 - Ability to perform specific system and integrated plant procedures during all modes of plant operation.  | 3.9         | 1             |
| 000056 Loss of Off-site Power / 6                          |           |           |           | X         |           |          | AA1.02 - ESF bus synchronization select switch to close bus tie breakers  | 4.0*        | 1             |
| 000057 Loss of Vital AC Inst. Bus / 6                      |           |           |           |           | X         |          | AA2.01 - Safety injection tank pressure and level indicators  | 3.7         | 1             |
| 000058 Loss of DC Power / 6                                |           |           |           |           |           | X        | 2.4.4 - Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures. | 4.0         | 1             |
| 000062 Loss of Nuclear Svc Water / 4                       |           |           | X         |           |           |          | AK3.02 - The automatic actions (alignments) within the nuclear service water resulting from the actuation of the ESFAS  | 3.6         | 1             |
| 000065 Loss of Instrument Air / 8                          |           |           | X         |           |           |          | AK3.08 - Actions contained in EOP for loss of instrument air  | 3.7         | 1             |



**PWR RO Examination Outline**

Printed: 03/29/2005

**Facility:** Fort Calhoun

**ES - 401**

**Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1**

**Form ES-401-2**

| <b>E/APE # / Name / Safety Function</b>                 | <b>K1</b> | <b>K2</b> | <b>K3</b> | <b>A1</b> | <b>A2</b> | <b>G</b> | <b>KA Topic</b>  | <b>Imp.</b> | <b>Points</b> |
|---|-----------|-----------|-----------|-----------|-----------|----------|--|-------------|---------------|
| CE/E02 Reactor Trip - Stabilization - Recovery / 1      |           |           | X         |           |           |          | EK3.1 - Facility operating characteristics during transient conditions, including coolant chemistry and the effects of temperature, pressure, and reactivity changes and operating limitations and reasons for these operating characteristics | 3.2         | 1             |
| CE/E05 Steam Line Rupture - Excessive Heat Transfer / 4 | X         |           |           |           |           |          | EK1.1 - Components, capacity, and function of emergency systems  | 3.0         | 1             |
| <b>K/A Category Totals:</b>                             | <b>2</b>  | <b>1</b>  | <b>4</b>  | <b>4</b>  | <b>3</b>  | <b>4</b> | <b>Group Point Total:</b>  | <b>18</b>   |               |

**PWR RO Examination Outline**

Printed: 03/29/2005

Facility: Fort Calhoun

ES - 401

**Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2**

**Form ES-401-2**

| <b>E/APE # / Name / Safety Function</b>     | <b>K1</b> | <b>K2</b> | <b>K3</b> | <b>A1</b> | <b>A2</b> | <b>G</b> | <b>KA Topic</b>   | <b>Imp.</b> | <b>Points</b> |
|---|-----------|-----------|-----------|-----------|-----------|----------|---|-------------|---------------|
| 000001 Continuous Rod Withdrawal / 1        |           | X         |           |           |           |          | AK2.08 - Individual rod display lights and indications  | 3.1         | 1             |
| 000024 Emergency Boration / 1               | X         |           |           |           |           |          | AK1.04 - Low temperature limits for boron concentration   | 2.8         | 1             |
| 000037 Steam Generator Tube Leak / 3        |           |           |           | X         |           |          | AA1.13 - S/G blowdown radiation monitors  | 3.9         | 1             |
| 000060 Accidental Gaseous Radwaste Rel. / 9 |           | X         |           |           |           |          | AK2.02 - Auxiliary building ventilation system  | 2.7         | 1             |
| 000068 Control Room Evac. / 8               |           | X         |           |           |           |          | AK2.02 - Reactor trip system  | 3.7         | 1             |
| 000074 Inad. Core Cooling / 4               |           |           |           | X         |           |          | EA1.05 - PORV   | 3.9         | 1             |
| CE/A11 RCS Overcooling - PTS / 4            |           |           |           |           |           | X        | 2.2.22 - Knowledge of limiting conditions for operations and safety limits.                       | 3.4         | 1             |
| CE/A16 Excess RCS Leakage / 2               |           |           |           |           |           | X        | 2.1.30 - Ability to locate and operate components, including local controls.                      | 3.9         | 1             |
| CE/E09 Functional Recovery                  |           |           | X         |           |           |          | EK3.2 - Normal, abnormal and emergency operating procedures associated with (Functional Recovery) | 3.2         | 1             |
| <b>K/A Category Totals:</b>                 | <b>1</b>  | <b>3</b>  | <b>1</b>  | <b>2</b>  | <b>0</b>  | <b>2</b> | <b>Group Point Total:</b>   | <b>9</b>    |               |

**PWR RO Examination Outline**

Printed: 03/29/2005

Facility: Fort Calhoun

**ES - 401**

**Plant Systems - Tier 2 / Group 1**

**Form ES-401-2**

| Sys/Evol # / Name                        | K1 | K2 | K3 | K4 | K5 | K6 | A1 | A2 | A3 | A4 | G | KA Topic  | Imp. | Points |
|--|----|----|----|----|----|----|----|----|----|----|---|---|------|--------|
| 003 Reactor Coolant Pump                 |    |    |    |    |    |    | X  |    |    |    |   | A1.08 - Seal water temperature  | 2.5  | 1      |
| 003 Reactor Coolant Pump                 |    |    |    |    |    |    |    |    | X  |    |   | A3.04 - RCS flow  | 3.6  | 1      |
| 004 Chemical and Volume Control          |    |    |    |    |    |    |    | X  |    |    |   | A2.16 - T-ave. and T-ref. deviations  | 3.2  | 1      |
| 004 Chemical and Volume Control          |    |    |    |    |    |    |    |    |    | X  |   | A4.12 - Boration/dilution batch control   | 3.8  | 1      |
| 005 Residual Heat Removal                |    |    |    | X  |    |    |    |    |    |    |   | K4.02 - Modes of operation  | 3.2  | 1      |
| 005 Residual Heat Removal                |    |    |    |    | X  |    |    |    |    |    |   | K5.02 - Need for adequate subcooling  | 3.4  | 1      |
| 006 Emergency Core Cooling               |    |    |    |    |    |    |    |    | X  |    |   | A3.06 - Valve lineups   | 3.9  | 1      |
| 007 Pressurizer Relief/Quench Tank       |    |    |    |    | X  |    |    |    |    |    |   | K5.02 - Method of forming a steam bubble in the PZR   | 3.1  | 1      |
| 008 Component Cooling Water              |    |    | X  |    |    |    |    |    |    |    |   | K3.02 - CRDS  | 2.9  | 1      |
| 010 Pressurizer Pressure Control         |    |    |    |    |    |    | X  |    |    |    |   | A1.09 - Tail pipe temperature and acoustic monitors   | 3.4  | 1      |
| 012 Reactor Protection                   |    |    |    |    |    |    |    |    |    |    | X | 2.1.32 - Ability to explain and apply all system limits and precautions.  | 3.4  | 1      |
| 013 Engineered Safety Features Actuation |    |    |    |    |    |    |    |    |    |    | X | 2.1.2 - Knowledge of operator responsibilities during all modes of plant operation.                             | 3.0  | 1      |
| 013 Engineered Safety Features Actuation | X  |    |    |    |    |    |    |    |    |    |   | K1.12 - ED/G  | 4.1  | 1      |
| 022 Containment Cooling                  |    |    |    |    |    |    |    | X  |    |    |   | A2.04 - Loss of service water   | 2.9* | 1      |
| 026 Containment Spray                    | X  |    |    |    |    |    |    |    |    |    |   | K1.02 - Cooling water   | 4.1  | 1      |
| 039 Main and Reheat Steam                |    |    |    | X  |    |    |    |    |    |    |   | K4.05 - Automatic isolation of steam line   | 3.7  | 1      |
| 059 Main Feedwater                       |    |    |    | X  |    |    |    |    |    |    |   | K4.18 - Automatic feedwater reduction on plant trip   | 2.8* | 1      |
| 059 Main Feedwater                       |    |    |    |    |    |    |    |    | X  |    |   | A3.06 - Feedwater isolation   | 3.2* | 1      |
| 061 Auxiliary/Emergency Feedwater        |    |    |    |    |    |    | X  |    |    |    |   | A1.04 - AFW source tank level   | 3.9  | 1      |
| 062 AC Electrical Distribution           |    |    |    |    |    |    |    |    |    |    | X | 2.4.50 - Ability to verify system alarm setpoints and operate controls identified in the alarm response manual. | 3.3  | 1      |
| 063 DC Electrical Distribution           |    |    |    |    |    |    |    |    |    | X  |   | A4.03 - Battery discharge rate  | 3.0* | 1      |
| 063 DC Electrical Distribution           | X  |    |    |    |    |    |    |    |    |    |   | K1.02 - AC electrical system  | 2.7  | 1      |

**PWR RO Examination Outline**

Printed: 03/29/2005

**Facility:** Fort Calhoun

**ES - 401**

**Plant Systems - Tier 2 / Group 1**

**Form ES-401-2**

| Sys/Evol # / Name                | K1       | K2       | K3       | K4       | K5       | K6       | A1       | A2       | A3       | A4       | G        | KA Topic   | Imp.      | Points |
|----------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|-----------|--------|
| 064 Emergency Diesel Generator   |          |          |          |          |          | X        |          |          |          |          |          | K6.07 - Air receivers  | 2.7       | 1      |
| 064 Emergency Diesel Generator   |          |          |          |          |          |          |          | X        |          |          |          | A2.11 - Conditions (minimum load) required for unloading an ED/G | 2.6       | 1      |
| 073 Process Radiation Monitoring |          |          |          |          |          |          |          |          |          |          | X        | A4.03 - Check source for operability demonstration               | 3.1       | 1      |
| 076 Service Water                |          | X        |          |          |          |          |          |          |          |          |          | K2.01 - Service water  | 2.7*      | 1      |
| 078 Instrument Air               |          |          | X        |          |          |          |          |          |          |          |          | K3.02 - Systems having pneumatic valves and controls             | 3.4       | 1      |
| 103 Containment                  |          |          |          |          |          |          |          |          | X        |          |          | A3.01 - Containment isolation                                    | 3.9       | 1      |
| <b>K/A Category Totals:</b>      | <b>3</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>2</b> | <b>1</b> | <b>3</b> | <b>3</b> | <b>4</b> | <b>3</b> | <b>3</b> | <b>Group Point Total:</b>  | <b>28</b> |        |

**PWR RO Examination Outline**

Printed: 03/29/2005

**Facility:** Fort Calhoun

**ES - 401**

**Plant Systems - Tier 2 / Group 2**

**Form ES-401-2**

| Sys/Evol # / Name                     | K1       | K2       | K3       | K4       | K5       | K6       | A1       | A2       | A3       | A4       | G        | KA Topic  | Imp. | Points |
|---------------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|---|------|--------|
| 001 Control Rod Drive                 | X        |          |          |          |          |          |          |          |          |          |          | K1.05 - NIS and RPS   | 4.5  | 1      |
| 002 Reactor Coolant                   |          |          |          |          |          | X        |          |          |          |          |          | K6.03 - Reactor vessel level indication   | 3.1  | 1      |
| 011 Pressurizer Level Control         |          | X        |          |          |          |          |          |          |          |          |          | K2.01 - Charging pumps  | 3.1  | 1      |
| 014 Rod Position Indication           |          |          |          |          |          |          |          |          |          | X        |          | A4.02 - Control rod mode-select switch  | 3.4  | 1      |
| 017 In-core Temperature Monitor       | X        |          |          |          |          |          |          |          |          |          |          | K1.01 - Plant computer  | 3.2* | 1      |
| 033 Spent Fuel Pool Cooling           |          |          |          |          |          |          | X        |          |          |          |          | A1.02 - Radiation monitoring systems  | 2.8  | 1      |
| 035 Steam Generator                   |          |          |          |          |          |          |          | X        |          |          |          | A2.06 - Small break LOCA  | 4.5  | 1      |
| 041 Steam Dump/Turbine Bypass Control |          |          |          |          |          |          |          |          |          |          | X        | 2.4.4 - Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures. | 4.0  | 1      |
| 045 Main Turbine Generator            |          |          | X        |          |          |          |          |          |          |          |          | K3.01 - Remainder of the plant  | 2.9  | 1      |
| 086 Fire Protection                   |          |          |          |          |          | X        |          |          |          |          |          | K6.04 - Fire, smoke, and heat detectors   | 2.6  | 1      |
| <b>K/A Category Totals:</b>           | <b>2</b> | <b>1</b> | <b>1</b> | <b>0</b> | <b>0</b> | <b>2</b> | <b>1</b> | <b>1</b> | <b>0</b> | <b>1</b> | <b>1</b> | <b>Group Point Total: 10</b>  |      |        |

**PWR RO Examination Outline**

Printed: 03/29/2005

**Facility:** Fort Calhoun

**ES - 401**

**Plant Systems - Tier 2 / Group 2**

**Form ES-401-2**

| Sys/Evol # / Name                     | K1       | K2       | K3       | K4       | K5       | K6       | A1       | A2       | A3       | A4       | G        | KA Topic  | Imp. | Points |
|---------------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|---|------|--------|
| 001 Control Rod Drive                 | X        |          |          |          |          |          |          |          |          |          |          | K1.05 - NIS and RPS   | 4.5  | 1      |
| 002 Reactor Coolant                   |          |          |          |          |          | X        |          |          |          |          |          | K6.03 - Reactor vessel level indication   | 3.1  | 1      |
| 011 Pressurizer Level Control         |          | X        |          |          |          |          |          |          |          |          |          | K2.01 - Charging pumps  | 3.1  | 1      |
| 014 Rod Position Indication           |          |          |          |          |          |          |          |          |          | X        |          | A4.02 - Control rod mode-select switch  | 3.4  | 1      |
| 017 In-core Temperature Monitor       | X        |          |          |          |          |          |          |          |          |          |          | K1.01 - Plant computer  | 3.2* | 1      |
| 033 Spent Fuel Pool Cooling           |          |          |          |          |          |          | X        |          |          |          |          | A1.02 - Radiation monitoring systems  | 2.8  | 1      |
| 035 Steam Generator                   |          |          |          |          |          |          |          | X        |          |          |          | A2.06 - Small break LOCA  | 4.5  | 1      |
| 041 Steam Dump/Turbine Bypass Control |          |          |          |          |          |          |          |          |          |          | X        | 2.4.4 - Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures. | 4.0  | 1      |
| 045 Main Turbine Generator            |          |          | X        |          |          |          |          |          |          |          |          | K3.01 - Remainder of the plant  | 2.9  | 1      |
| 086 Fire Protection                   |          |          |          |          |          | X        |          |          |          |          |          | K6.04 - Fire, smoke, and heat detectors   | 2.6  | 1      |
| <b>K/A Category Totals:</b>           | <b>2</b> | <b>1</b> | <b>1</b> | <b>0</b> | <b>0</b> | <b>2</b> | <b>1</b> | <b>1</b> | <b>0</b> | <b>1</b> | <b>1</b> | <b>Group Point Total: 10</b>  |      |        |

## Generic Knowledge and Abilities Outline (Tier 3)

### PWR RO Examination Outline

Printed: 03/29/2005

Facility: Fort Calhoun

**Form ES-401-3**

| <u>Generic Category</u>          | <u>KA</u>              | <u>KA Topic</u>  | <u>Imp.</u> | <u>Points</u> |
|----------------------------------|------------------------|--|-------------|---------------|
| <b>Conduct of Operations</b>     | 2.1.2                  | Knowledge of operator responsibilities during all modes of plant operation.  | 3.0         | 1             |
|                                  | 2.1.3                  | Knowledge of shift turnover practices.   | 3.0         | 1             |
|                                  | 2.1.29                 | Knowledge of how to conduct and verify valve lineups.  | 3.4         | 1             |
|                                  | <b>Category Total:</b> |  |             | <b>3</b>      |
| <b>Equipment Control</b>         | 2.2.13                 | Knowledge of tagging and clearance procedures.   | 3.6         | 1             |
|                                  | 2.2.30                 | Knowledge of RO duties in the control room during fuel handling such as alarms from fuel handling area, communication with fuel storage facility, systems operated from the control room in support of fueling operations, and supporting instrumentation. | 3.5         | 1             |
|                                  | <b>Category Total:</b> |  |             | <b>2</b>      |
| <b>Radiation Control</b>         | 2.3.1                  | Knowledge of 10 CFR: 20 and related facility radiation control requirements.   | 2.6         | 1             |
|                                  | 2.3.2                  | Knowledge of facility ALARA program.   | 2.5         | 1             |
|                                  | <b>Category Total:</b> |  |             | <b>2</b>      |
| <b>Emergency Procedures/Plan</b> | 2.4.6                  | Knowledge symptom based EOP mitigation strategies.   | 3.1         | 1             |
|                                  | 2.4.15                 | Knowledge of communications procedures associated with EOP implementation.   | 3.0         | 1             |
|                                  | 2.4.23                 | Knowledge of the bases for prioritizing emergency procedure implementation during emergency operations.  | 2.8         | 1             |
|                                  | <b>Category Total:</b> |  |             | <b>3</b>      |

**Generic Total: 10**







# PWR RO Written Examination Outline Summary

| System/Mode                                   | System Title                     | Cat 1    | Cat 2    | Cat 3    | Cat 4    | Points    |
|---|----------------------------------|----------|----------|----------|----------|-----------|
| <b>Generic Knowledge and Abilities Tier 3</b> |                                  |          |          |          |          |           |
| <b>000000</b>                                 | Generic Knowledges and Abilities | 3        | 2        | 2        | 3        | 10        |
|   |                                  | <b>3</b> | <b>2</b> | <b>2</b> | <b>3</b> | <b>10</b> |

**Grand Total of Generic K&A Selection:**

|          |          |          |          |           |
|----------|----------|----------|----------|-----------|
| <b>3</b> | <b>2</b> | <b>2</b> | <b>3</b> | <b>10</b> |
|----------|----------|----------|----------|-----------|

# PWR RO Written Examination Outline

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| System/Mode | System Title  | KA Number | Title  | RO Value | 10 CFR 55                   |
|-------------|---|-----------|--|----------|-----------------------------|
| Tier        | 1   | Group     | 1  |          |                             |
| 000008      | Pressurizer Vapor Space Accident                    | AA1.06    | Ability to operate and / or monitor the following as they apply to the Pressurizer Vapor Space Accident:: Control of PZR level   | 3.6      | 41.7 / 45.5 / 45.6          |
| 000009      | Small Break LOCA                                    | EA2.08    | Ability to determine or interpret the following as they apply to a small break LOCA:: Letdown isolation valve position indication  | 2.9*     | 43.5 / 45.13                |
| 000011      | Large Break LOCA                                    | 2.4.06    | : Knowledge symptom based EOP mitigation strategies.   | 3.1      | 41.10 / 43.5 / 45.13        |
| 000017      | Reactor Coolant Pump Malfunctions (Loss of RC Flow) | AA1.16    | Ability to operate and / or monitor the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow):: Low-power reactor trip block status lights  | 3.2*     | 41.7 / 45.5 / 45.6          |
| 000022      | Loss of Reactor Coolant Makeup                      | AA1.03    | Ability to operate and / or monitor the following as they apply to the Loss of Reactor Coolant Pump Makeup:: PZR level trend   | 3.2      | 41.7 / 45.5 / 45.6          |
| 000025      | Loss of Residual Heat Removal System                | AK2.03    | Knowledge of the interrelations between the Loss of Residual Heat Removal System and the following:: Service water or closed cooling water pumps   | 2.7      | 41.7 / 45.7                 |
| 000026      | Loss of Component Cooling Water                     | AK3.02    | Knowledge of the reasons for the following responses as they apply to the Loss of Component Cooling Water:: The automatic actions (alignments) within the CCWS/nuclear service water resulting from the actuation of the ESFAS | 3.6      | 41.5 / 41.10 / 45.6 / 45.13 |
| 000027      | Pressurizer Pressure Control System Malfunction     | AA2.07    | Ability to determine and interpret the following as they apply to the Pressurizer Pressure Control Malfunctions:: Makeup flow indication   | 3.1      | 43.5 / 45.13                |
| 000038      | Steam Generator Tube Rupture                        | EK1.03    | Knowledge of the operational implications of the following concepts as they apply to the SGTR:: Natural circulation  | 3.9      | 41.8 / 41.10 / 45.3         |
| 000054      | Loss of Main Feedwater                              | 2.4.50    | : Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.   | 3.3      | 45.3                        |
| 000055      | Station Blackout                                    | 2.1.23    | : Ability to perform specific system and integrated plant procedures during all modes of plant operation.  | 3.9      | 45.2 / 45.6                 |

## PWR RO Written Examination Outline (Continued)

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| System/Mode | System Title                               | KA Number | Title  | RO Value | 10 CFR 55                   |
|-------------|--|-----------|--|----------|-----------------------------|
| 000056      | Loss of Off-Site Power                     | AA1.02    | Ability to operate and / or monitor the following as they apply to the Loss of Offsite Power:: ESF bus synchronization select switch to close bus tie breakers   | 4.0*     | 41.7 / 45.5 / 45.6          |
| 000057      | Loss of Vital AC Electrical Instrument Bus | AA2.01    | Ability to determine and interpret the following as they apply to the Loss of Vital AC Instrument Bus:: Safety injection tank pressure and level indicators  | 3.7      | 43.5 / 45.13                |
| 000058      | Loss of DC Power                           | 2.4.04    | : Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.  | 4.0      | 41.10 / 43.2 / 45.6         |
| 000062      | Loss of Nuclear Service Water              | AK3.02    | Knowledge of the reasons for the following responses as they apply to the Loss of Nuclear Service Water: The automatic actions (alignments) within the nuclear service water resulting from the actuation of the ESFAS   | 3.6      | 41.4,41.8/45.7              |
| 000065      | Loss of Instrument Air                     | AK3.08    | Knowledge of the reasons for the following responses as they apply to the Loss of Instrument Air:: Actions contained in EOP for loss of instrument air   | 3.7      | 41.5 / 41.10 / 45.6 / 45.13 |
| CE-E02      | Reactor Trip Recovery                      | EK3.01    | Knowledge of the reasons for the following responses as they apply to the (Reactor Trip Recovery): Facility operating characteristics during transient conditions, including coolant chemistry and the effects of temperature, pressure, and reactivity changes and operating limitations and reasons for these operating characteristics. | 3.2      | 41.5 / 41.10 / 45.6 / 45.13 |
| CE-E05      | Excess Steam Demand                        | EK1.01    | Knowledge of the operational implications of the following concepts as they apply to the (Excess Steam Demand): Components, capacity, and function of emergency systems.   | 3.0      | 41.8 / 41.10 / 45.3         |

## PWR RO Written Examination Outline (Continued)

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| System/Mode | System Title                        | KA Number | Title  | RO Value | 10 CFR 55                   |
|-------------|-------------------------------------|-----------|--|----------|-----------------------------|
| Tier        | 1                                   | Group     | 2  |          |                             |
| 000001      | Continuous Rod Withdrawal           | AK2.08    | Knowledge of the interrelations between the Continuous Rod Withdrawal and the following::<br>Individual rod display lights and indications   | 3.1      | 41.7 / 45.7                 |
| 000024      | Emergency Boration                  | AK1.04    | Knowledge of the operational implications of the following concepts as they apply to Emergency Boration:: Low temperature limits for boron concentration                                       | 2.8      | 41.8 / 41.10 / 45.3         |
| 000037      | Steam Generator Tube Leak           | AA1.13    | Ability to operate and / or monitor the following as they apply to the Steam Generator Tube Leak::<br>S/G blowdown radiation monitors  | 3.9      | 41.7 / 45.5 / 45.6          |
| 000060      | Accidental Gaseous Radwaste Release | AK2.02    | Knowledge of the interrelations between the Accidental Gaseous Radwaste Release and the following:: Auxiliary building ventilation system  | 2.7      | 41.7 / 45.7                 |
| 000068      | Control Room Evacuation             | AK2.02    | Knowledge of the interrelations between the Control Room Evacuation and the following:: Reactor trip system  | 3.7      | 41.7 / 45.7                 |
| 000074      | Inadequate Core Cooling             | EA1.05    | Ability to operate and monitor the following as they apply to a Inadequate Core Cooling:: PORV   | 3.9      | 41.7 / 45.5 / 45.6          |
| CE-A11      | RCS Overcooling                     | 2.2.22    | : Knowledge of limiting conditions for operations and safety limits.   | 3.4      | 43.2 / 45.2                 |
| CE-A16      | Excess RCS Leakage                  | 2.1.30    | : Ability to locate and operate components, including local controls.  | 3.9      | 41.7 / 45.7                 |
| CE-E09      | Functional Recovery                 | EK3.02    | Knowledge of the reasons for the following responses as they apply to the (Functional Recovery):<br>Normal, abnormal and emergency operating procedures associated with (Functional Recovery). | 3.0      | 41.5 / 41.10 / 45.6 / 45.13 |

## PWR RO Written Examination Outline (Continued)

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| System/Mode   | System Title                                 | KA Number | Title   | RO Value | 10 CFR 55                 |
|---------------|--|-----------|---|----------|---------------------------|
| <b>Tier</b> 2 | <b>Group</b> 1                               |           |   |          |                           |
| 003000        | Reactor Coolant Pump System                  | A1.08     | Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the RCPS controls including:: Seal water temperature   | 2.5      | 41.5 / 45.5               |
| 003000        | Reactor Coolant Pump System                  | A3.04     | Ability to monitor automatic operation of the RCPS, including:: RCS flow  | 3.6      | 41.7 / 45.5               |
| 004000        | Chemical and Volume Control System           | A2.16     | 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:: T-ave. and T-ref. deviations | 3.2      | 41.5 / 43.5 / 45.3 / 45.5 |
| 004000        | Chemical and Volume Control System           | A4.12     | Ability to manually operate and/or monitor in the control room:: Boration/dilution batch control  | 3.8      | 41.7 / 45.5 to 45.8       |
| 005000        | Residual Heat Removal System                 | K4.02     | Knowledge of RHRS design feature(s) and/or interlock(s) which provide or the following:: Modes of operation   | 3.2      | 41.7                      |
| 005000        | Residual Heat Removal System                 | K5.02     | Knowledge of the operational implications of the following concepts as they apply the RHRS:: Need for adequate subcooling   | 3.4      | 41.5 / 45.7               |
| 006000        | Emergency Core Cooling System                | A3.06     | Ability to monitor automatic operation of the ECCS, including:: Valve lineups   | 3.9      | 41.7 / 45.5               |
| 007000        | Pressurizer Relief Tank / Quench Tank System | K5.02     | Knowledge of the operational implications of the following concepts as the apply to PRTS:: Method of forming a steam bubble in the PZR  | 3.1      | 41.5 / 45.7               |
| 008000        | Component Cooling Water System               | K3.02     | Knowledge of the effect that a loss or malfunction of the CCWS will have on the following:: CRDS  | 2.9      | 41.7 / 45.6               |
| 010000        | Pressurizer Pressure Control System          | A1.09     | Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the PZR PCS controls including:: Tail pipe temperature and acoustic monitors   | 3.4      | 41.5 / 45.5               |
| 012000        | Reactor Protection System                    | 2.1.32    | : Ability to explain and apply all system limits and precautions.   | 3.4      | 41.10 / 43.2 / 45.12      |

## PWR RO Written Examination Outline (Continued)

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| System/Mode | System Title                                | KA Number | Title   | RO Value | 10 CFR 55                   |
|-------------|---|-----------|---|----------|-----------------------------|
| 013000      | Engineered Safety Features Actuation System | 2.1.02    | : Knowledge of operator responsibilities during all modes of plant operation.   | 3.0      | 41.10 / 45.13               |
| 013000      | Engineered Safety Features Actuation System | K1.12     | Knowledge of the physical connections and/or cause effect relationships between the ESFAS and the following systems:: ED/G  | 4.1      | 41.2 to 41.9 / 45.7 to 45.8 |
| 022000      | Containment Cooling System                  | A2.04     | Ability to (a) predict the impacts of the following malfunctions or operations on the CCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:: Loss of service water | 2.9*     | 41.5 / 43.5 / 45.3 / 45.13  |
| 026000      | Containment Spray System                    | K1.02     | Knowledge of the physical connections and/or cause-effect relationships between the CSS and the following systems:: Cooling water   | 4.1      | 41.2 to 41.9 / 45.7 to 45.8 |
| 039000      | Main and Reheat Steam System                | K4.05     | Knowledge of MRSS design feature(s) and/or interlock(s) which provide for the following:: Automatic isolation of steam line   | 3.7      | 41.7                        |
| 059000      | Main Feedwater System                       | A3.06     | Ability to monitor automatic operation of the MFW, including:: Feedwater isolation  | 3.2*     | 41.7 / 45.5                 |
| 059000      | Main Feedwater System                       | K4.18     | Knowledge of MFW design feature(s) and/or interlock(s) which provide for the following:: Automatic feedwater reduction on plant trip  | 2.8*     | 41.7                        |
| 061000      | Auxiliary / Emergency Feedwater System      | A1.04     | Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the AFW controls including:: AFW source tank level   | 3.9      | 41.5 / 45.5                 |
| 062000      | A.C. Electrical Distribution                | 2.4.50    | : Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.  | 3.3      | 45.3                        |
| 063000      | D.C. Electrical Distribution                | A4.03     | Ability to manually operate and/or monitor in the control room:: Battery discharge rate   | 3.0*     | 41.7 / 45.5 to 45.8         |
| 063000      | D.C. Electrical Distribution                | K1.02     | Knowledge of the physical connections and/or cause-effect relationships between the dc electrical system and the following systems:: AC electrical system   | 2.7      | 41.2 to 41.9 / 45.7 to 45.8 |

## PWR RO Written Examination Outline (Continued)

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| System/Mode | System Title                        | KA Number | Title  | RO Value | 10 CFR 55                  |
|-------------|-------------------------------------|-----------|--|----------|----------------------------|
| 064000      | Emergency Diesel Generators         | A2.11     | Ability to (a) predict the impacts of the following malfunctions or operations on the ED/G system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:: Conditions (minimum load) required for unloading an ED/G | 2.6      | 41.5 / 43.5 / 45.3 / 45.13 |
| 064000      | Emergency Diesel Generators         | K6.07     | Knowledge of the effect of a loss or malfunction of the following will have on the ED/G system::<br>Air receivers  | 2.7      | 41.7 / 45.7                |
| 073000      | Process Radiation Monitoring System | A4.03     | Ability to manually operate and/or monitor in the control room:: Check source for operability demonstration  | 3.1      | 41.7 / 45.5 to 45.8        |
| 076000      | Service Water System                | K2.01     | Knowledge of bus power supplies to the following:: Service water   | 2.7*     | 41.7                       |
| 078000      | Instrument Air System               | K3.02     | Knowledge of the effect that a loss or malfunction of the IAS will have on the following:: Systems having pneumatic valves and controls  | 3.4      | 41.7 / 45.6                |
| 103000      | Containment System                  | A3.01     | Ability to monitor automatic operation of the containment system, including:: Containment isolation  | 3.9      | 41.7 / 45.5                |



## PWR RO Written Examination Outline (Continued)

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| System/Mode   | System Title                                 | KA Number | Title   | RO Value | 10 CFR 55                   |
|---------------|--|-----------|---|----------|-----------------------------|
| <b>Tier</b> 2 | <b>Group</b> 2                               |           |   |          |                             |
| 001000        | Control Rod Drive System                     | K1.05     | Knowledge of the physical connections and/or cause-effect relationships between the CRDS and the following systems:: NIS and RPS  | 4.5      | 41.2 to 41.9 / 45.7 to 45.8 |
| 002000        | Reactor Coolant System                       | K6.03     | Knowledge of the effect or a loss or malfunction on the following RCS components:: Reactor vessel level indication  | 3.1      | 41.7 / 45.7                 |
| 011000        | Pressurizer Level Control System             | K2.01     | Knowledge of bus power supplies to the following:: Charging pumps   | 3.1      | 41.7                        |
| 014000        | Rod Position Indication System               | A4.02     | Ability to manually operate and/or monitor in the control room:: Control rod mode-select switch   | 3.4      | 41.7 / 45.5 to 45.8         |
| 017000        | In-Core Temperature Monitor System           | K1.01     | Knowledge of the physical connections and/or cause-effect relationships between the ITM system and the following systems:: Plant computer   | 3.2*     | 41.2 to 41.9 / 45.7 to 45.8 |
| 033000        | Spent Fuel Pool Cooling System               | A1.02     | Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with Spent Fuel Pool Cooling System operating the controls including:: Radiation monitoring systems   | 2.8      | 41.5 / 45.5                 |
| 035000        | Steam Generator System                       | A2.06     | Ability to (a) predict the impacts of the following malfunctions or operations on the GS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:: Small break LOCA | 4.5      | 41.5 / 43.5 / 45.3 / 45.5   |
| 041000        | Steam Dump System and Turbine Bypass Control | 2.4.04    | : Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.   | 4.0      | 41.10 / 43.2 / 45.6         |
| 045000        | Main Turbine Generator System                | K3.01     | Knowledge of the effect that a loss or malfunction of the MT/G system will have on the following:: Remainder of the plant   | 2.9      | 41.7 / 45.6                 |
| 086000        | Fire Protection System                       | K6.04     | Knowledge of the effect of a loss or malfunction on the Fire Protection System following will have on the :: Fire, smoke, and heat detectors  | 2.6      | 41.7 / 45.7                 |

## PWR RO Written Examination Outline (Last Page)

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| System/Mode | System Title                     | KA Number    | Title  | RO Value | 10 CFR 55                   |
|-------------|----------------------------------|--------------|--|----------|-----------------------------|
| <b>Tier</b> | 3                                | <b>Group</b> | 4  |          |                             |
| 000000      | Generic Knowledges and Abilities | 2.1.02       | : Knowledge of operator responsibilities during all modes of plant operation.  | 3.0      | 41.10 / 45.13               |
| 000000      | Generic Knowledges and Abilities | 2.1.03       | : Knowledge of shift turnover practices.   | 3.0      | 41.10 / 45.13               |
| 000000      | Generic Knowledges and Abilities | 2.1.29       | : Knowledge of how to conduct and verify valve lineups.  | 3.4      | 41.10 / 45.1 / 45.12        |
| 000000      | Generic Knowledges and Abilities | 2.2.13       | : Knowledge of tagging and clearance procedures.   | 3.6      | 41.10 / 45.13               |
| 000000      | Generic Knowledges and Abilities | 2.2.30       | : Knowledge of RO duties in the control room during fuel handling such as alarms from fuel handling area, communication with fuel storage facility, systems operated from the control room in support of fueling operations, and supporting instrumentation. | 3.5      | 45.12                       |
| 000000      | Generic Knowledges and Abilities | 2.3.01       | : Knowledge of 10CFR20 and related facility radiation control requirements.  | 2.6      | 41.12 / 43.4 / 45.9 / 45.10 |
| 000000      | Generic Knowledges and Abilities | 2.3.02       | : Knowledge of facility ALARA program.   | 2.5      | 41.12 / 43.4 / 45.9 / 45.10 |
| 000000      | Generic Knowledges and Abilities | 2.4.06       | : Knowledge symptom based EOP mitigation strategies.   | 3.1      | 41.10 / 43.5 / 45.13        |
| 000000      | Generic Knowledges and Abilities | 2.4.15       | : Knowledge of communications procedures associated with EOP implementation.   | 3.0      | 41.10 / 45.13               |
| 000000      | Generic Knowledges and Abilities | 2.4.23       | : Knowledge of the bases for prioritizing emergency procedure implementation during emergency operations.  | 2.8      | 41.10 / 45.13               |

| Tier/Group | Randomly Selected K/A | Description  | Reason for Rejection                       |
|------------|-----------------------|--|--|
| 1/1        | 000025 AA1.13         | Ability to operate and / or monitor the following as they apply to the Loss of Residual Heat Removal System:SWS radiation monitors   | No Raw Water Rad monitor in service at FCS |
| 1/1        | 000025 AA1.19         | Ability to operate and / or monitor the following as they apply to the Loss of Residual Heat Removal System:Block orifice bypass valve controller and indicators                     | Not a FCS design feature                   |
| 1/1        | 000029 EA1.05         | Ability to operate and monitor the following as they apply to a ATWS:BIT outlet valve switches   | No BIT at FCS                              |
| 1/1        | 000029 EK1.02         | Knowledge of the operational implications of the following concepts as they apply to the ATWS:Definition of reactivity   | GFE Topic                                  |
| 1/1        | 000029 EK1.05         | Knowledge of the operational implications of the following concepts as they apply to the ATWS:Definition of negative temperature coefficient as applied to large PWR coolant systems | GFE Topic                                  |

| Tier/Group | Randomly Selected K/A | Description   | Reason for Rejection                     |
|------------|-----------------------|---|--|
| 1/1        | 000038 EA2.03         | Ability to determine or interpret the following as they apply to a SGTR:Which S/G is ruptured   | Will be evaluated during operating exam. |
| 1/1        | 000038 EA1.37         | Ability to operate and monitor the following as they apply to a SGTR:Controlling of thermal shock during PZR spray operation  | No specific concern at FCS               |
| 1/1        | 000038 EA1.08         | Ability to operate and monitor the following as they apply to a SGTR:Core cooling monitor   | Core cooling monitor?                    |
| 1/1        | 000062 AA2.06         | Ability to determine and interpret the following as they apply to the Loss of Nuclear Service Water:The length of time after the loss of SWS flow to a component before that component may be damaged | No specified time limits at FCS          |
| 1/2        | 000001 AA1.01         | Ability to operate and / or monitor the following as they apply to the Continuous Rod Withdrawal:Bank select switch   | Redundant to sampled K/A 014000 A4.02    |

| Tier/Group | Randomly Selected K/A | Description  | Reason for Rejection                     |
|------------|-----------------------|--|--|
| 1/2        | 000001 AK1.19         | Knowledge of the operational implications of the following concepts as they apply to Continuous Rod Withdrawal: Voids coefficient  | GFE Topic                                |
| 1/2        | 000001 AK2.02         | Knowledge of the interrelations between the Continuous Rod Withdrawal and the following: Controllers and positioners   | Rod control is manual only               |
| 1/2        | 000003 AK1.13         | Knowledge of the operational implications of the following concepts as they apply to Dropped Control Rod: Interaction of ICS control stations as well as purpose, function, and modes of operation of ICS  | No ICS at FCS                            |
| 1/2        | 000003 AK1.22         | Knowledge of the operational implications of the following concepts as they apply to Dropped Control Rod: Calculation of power defect: algebraic sum of moderator temperature and fuel temperature defects | GFE Topic                                |
| 1/2        | 000003 AK1.05         | Knowledge of the operational implications of the following concepts as they apply to Dropped Control Rod: CVCS response to dropped rod   | Low Importance, no FCS specific priority |

| Tier/Group | Randomly Selected K/A | Description  | Reason for Rejection  |
|------------|-----------------------|--|---|
| 1/2        | 000005 AA2.04         | Ability to determine and interpret the following as they apply to the Inoperable / Stuck Control Rod: Interpretation of computer in-core TC map for dropped rod location   | Not used by operators to determine dropped rod location             |
| 1/2        | 000060 AK1.02         | Knowledge of the operational implications of the following concepts as they apply to Accidental Gaseous Radwaste Release: Biological effects on humans of the various types of radiation, exposure levels that are acceptable for personnel in a nuclear reactor power plant; the units used for radiation intensity measurements and for radiation exposure | Not an RO task related to event                                     |
| 1/2        | 000060 AA2.03         | Ability to determine and interpret the following as they apply to the Accidental Gaseous Radwaste: The steps necessary to isolate a given radioactive-gas leak, using P&IDs  | Difficult to provide P&IDs of required size in written exam setting |
| 1/2        | 000067 AA1.04         | Ability to operate and / or monitor the following as they apply to the Plant Fire on Site: Bypass of a heat detector   | Not an FCS design feature   |
| 2/1        | 059000 K4.19          | Knowledge of MFW design feature(s) and/or interlock(s) which provide for the following: Automatic feedwater isolation of MFW   | Redundant to sampled K/A 059000 A3.06                               |

| Tier/Group | Randomly Selected K/A | Description  | Reason for Rejection                           |
|------------|-----------------------|--|--|
| 2/1        | 076000 K3.02          | Knowledge of the effect that a loss or malfunction of the SWS will have on the following:Secondary closed cooling water                                  | No relationship                                |
| 2/1        | 076000 K1.09          | Knowledge of the physical connections and/or cause- effect relationships between the SWS and the following systems:Reactor building closed cooling water | No separate reactor building CCW system at FCS |
| 2/2        | 041000 A4.02          | Ability to manually operate and/or monitor in the control room:Cooldown valves   | Not an FCS design feature                      |
| 2/2        | 045000 K4.44          | Knowledge of MT/G system design feature(s) and/or interlock(s) which provide for the following:Impulse pressure mode control of steam dumps              | Not used at FCS                                |
| 2/2        | 071000 A4.19          | Ability to manually operate and/or monitor in the control room:Bringing an empty WDGS decay tank on line and shutting down a full tank                   | Not performed from control room                |

| Tier/Group | Randomly Selected K/A | Description  | Reason for Rejection   |
|------------|-----------------------|--|--|
| 2/2        | 072000 K4.02          | Knowledge of ARM system design feature(s) and/or interlock(s) which provide for the following:Fuel building isolation                | Not part of FCS design   |
| 2/2        | 086000 2.4.49         | Ability to perform without reference to procedures those actions that require immediate operation of system components and controls. | No immediate actions that would be performed prior to implementing procedure for this system |



| Facility: Fort Calhoun  |             | Date of Exam: 07/11/05 |     |     |     |     |     |     |     |     |     |     |                 |          |    |       |    |
|---|-------------|------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------|----------|----|-------|----|
| 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 |     |     | 4   | 3   | N/A |     |     | 4               | 18       | 3  | 3     | 6  |
|   | 2           | 1                      | 3   | 1   | N/A |     |     | 2   | 0   | N/A |     |     | 2               | 9        | 3  | 1     | 4  |
|   | Tier Totals | 3                      | 4   | 5   | N/A |     |     | 6   | 3   | N/A |     |     | 6               | 27       | 6  | 4     | 10 |
| 2. Plant Systems  | 1           | 3                      | 1   | 2   | 3   | 2   | 1   | 3   | 3   | 4   | 3   | 3   | 28              | 2        | 3  | 5     |    |
|   | 2           | 2                      | 1   | 1   | 0   | 0   | 2   | 1   | 1   | 0   | 1   | 1   | 10              | 1 & K4FH | 1  | 3     |    |
|   | Tier Totals | 5                      | 2   | 3   | 3   | 2   | 3   | 4   | 4   | 4   | 4   | 4   | 38              | 4        | 4  | 8     |    |
| 3. Generic Knowledge and Abilities Categories   |             |                        |     | 1   | 2   | 3   | 4   | 10  |     |     |     | 1   | 2               | 3        | 4  | 7     |    |
|   |             |                        |     | 3   | 2   | 2   | 3   |     |     |     |     | 2   | 2               | 1        | 2  |       |    |
| <p>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).</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>6. Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.</p> <p>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.</p> <p>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. Use duplicate pages for RO and SRO-only exams.</p> <p>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.</p> |             |                        |     |     |     |     |     |     |     |     |     |     |                 |          |    |       |    |

## PWR SRO Examination Outline

Printed: 03/29/2005

Facility: Fort Calhoun

ES - 401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1

Form ES-401-2

| E/APE # / Name / Safety Function                   | K1       | K2       | K3       | A1       | A2       | G        | KA Topic  | Imp.     | Points |
|--|----------|----------|----------|----------|----------|----------|---|----------|--------|
| 000009 Small Break LOCA / 3                        |          |          |          |          | X        |          | EA2.25 - Reactor trip setpoints   | 4.1      | 1      |
| 000015 RCP Malfunctions / 4                        |          |          |          |          |          | X        | 2.1.32 - Ability to explain and apply all system limits and precautions.  | 3.8      | 1      |
| 000025 Loss of RHR System / 4                      |          |          |          |          | X        |          | AA2.07 - Pump cavitation  | 3.7      | 1      |
| 000026 Loss of Component Cooling Water / 8         |          |          |          |          | X        |          | AA2.02 - The cause of possible CCW loss   | 3.6      | 1      |
| 000038 Steam Gen. Tube Rupture / 3                 |          |          |          |          |          | X        | 2.4.30 - Knowledge of which events related to system operations/status should be reported to outside agencies.    | 3.6      | 1      |
| CE/E02 Reactor Trip - Stabilization - Recovery / 1 |          |          |          |          |          | X        | 2.2.25 - Knowledge of bases in technical specifications for limiting conditions for operations and safety limits. | 3.7      | 1      |
| <b>K/A Category Totals:</b>                        | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>3</b> | <b>3</b> | <b>Group Point Total:</b>   | <b>6</b> |        |

## PWR SRO Examination Outline

Printed: 03/29/2005

Facility: Fort Calhoun

ES - 401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2

Form ES-401-2

| E/APE # / Name / Safety Function         | K1       | K2       | K3       | A1       | A2       | G        | KA Topic   | Imp.                      | Points   |
|--|----------|----------|----------|----------|----------|----------|--|---------------------------|----------|
| 000068 Control Room Evac. / 8            |          |          |          |          | X        |          | AA2.10 - Source range count rate   | 4.4*                      | 1        |
| 000074 Inad. Core Cooling / 4            |          |          |          |          | X        |          | EA2.02 - Availability of main or auxiliary feedwater   | 4.6                       | 1        |
| 000076 High Reactor Coolant Activity / 9 |          |          |          |          |          | X        | 2.1.14 - Knowledge of system status criteria which require the notification of plant personnel.              | 3.3                       | 1        |
| CE/E09 Functional Recovery               |          |          |          |          | X        |          | EA2.1 - Facility conditions and selection of appropriate procedures during abnormal and emergency operations | 4.4                       | 1        |
| <b>K/A Category Totals:</b>              | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>3</b> | <b>1</b> |  | <b>Group Point Total:</b> | <b>4</b> |

**PWR SRO Examination Outline**

Printed: 03/29/2005

**Facility:** Fort Calhoun

**ES - 401**

**Plant Systems - Tier 2 / Group 1**

**Form ES-401-2**

| Sys/Evol # / Name                  | K1       | K2       | K3       | K4       | K5       | K6       | A1       | A2       | A3       | A4       | G        | KA Topic   | Imp.     | Points |
|------------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|----------|--------|
| 004 Chemical and Volume Control    |          |          |          |          |          |          |          | X        |          |          |          | A2.11 - Loss of IAS  | 4.2      | 1      |
| 006 Emergency Core Cooling         |          |          |          |          |          |          |          |          |          |          | X        | 2.1.33 - Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications. | 4.0      | 1      |
| 007 Pressurizer Relief/Quench Tank |          |          |          |          |          |          |          | X        |          |          |          | A2.05 - Exceeding PRT high-pressure limits   | 3.6      | 1      |
| 063 DC Electrical Distribution     |          |          |          |          |          |          |          |          |          |          | X        | 2.2.22 - Knowledge of limiting conditions for operations and safety limits.  | 4.1      | 1      |
| 103 Containment                    |          |          |          |          |          |          |          |          |          |          | X        | 2.1.32 - Ability to explain and apply all system limits and precautions.   | 3.8      | 1      |
| <b>K/A Category Totals:</b>        | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>2</b> | <b>0</b> | <b>0</b> | <b>3</b> | <b>Group Point Total:</b>  | <b>5</b> |        |

**PWR SRO Examination Outline**

Printed: 03/29/2005

**Facility:** Fort Calhoun

**ES - 401**

**Plant Systems - Tier 2 / Group 2**

**Form ES-401-2**

| <b>Sys/Evol # / Name</b>    | <b>K1</b> | <b>K2</b> | <b>K3</b> | <b>K4</b> | <b>K5</b> | <b>K6</b> | <b>A1</b> | <b>A2</b> | <b>A3</b> | <b>A4</b> | <b>G</b> | <b>KA Topic</b>   | <b>Imp.</b> | <b>Points</b> |
|-----------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|---|-------------|---------------|
| 001 Control Rod Drive       |           |           |           |           |           |           |           | X         |           |           |          | A2.13 - ATWS  | 4.6         | 1             |
| 002 Reactor Coolant         |           |           |           |           |           |           |           |           |           |           | X        | 2.2.22 - Knowledge of limiting conditions for operations and safety limits. | 4.1         | 1             |
| 034 Fuel Handling Equipment |           |           |           | X         |           |           |           |           |           |           |          | K4.01 - Fuel protection from binding and dropping                           | 3.4         | 1             |
| <b>K/A Category Totals:</b> | <b>0</b>  | <b>0</b>  | <b>0</b>  | <b>1</b>  | <b>0</b>  | <b>0</b>  | <b>0</b>  | <b>1</b>  | <b>0</b>  | <b>0</b>  | <b>1</b> | <b>Group Point Total:</b>   | <b>3</b>    |               |

## Generic Knowledge and Abilities Outline (Tier 3)

### PWR SRO Examination Outline

Printed: 03/29/2005

Facility: Fort Calhoun

**Form ES-401-3**

| <u>Generic Category</u>          | <u>KA</u>              | <u>KA Topic</u>   | <u>Imp.</u> | <u>Points</u> |
|----------------------------------|------------------------|---|-------------|---------------|
| <b>Conduct of Operations</b>     | 2.1.4                  | Knowledge of shift staffing requirements.   | 3.4         | 1             |
|                                  | 2.1.34                 | Ability to maintain primary and secondary plant chemistry within allowable limits.                          | 2.9         | 1             |
|                                  | <b>Category Total:</b> |   |             | <b>2</b>      |
| <b>Equipment Control</b>         | 2.2.5                  | Knowledge of the process for making changes in the facility as described in the safety analysis report.     | 2.7         | 1             |
|                                  | 2.2.19                 | Knowledge of maintenance work order requirements.   | 3.1         | 1             |
|                                  | <b>Category Total:</b> |   |             | <b>2</b>      |
| <b>Radiation Control</b>         | 2.3.10                 | Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure. | 3.3         | 1             |
|                                  | <b>Category Total:</b> |   |             | <b>1</b>      |
| <b>Emergency Procedures/Plan</b> | 2.4.29                 | Knowledge of the emergency plan.  | 4.0         | 1             |
|                                  | 2.4.45                 | Ability to prioritize and interpret the significance of each annunciator or alarm.                          | 3.6         | 1             |
|                                  | <b>Category Total:</b> |   |             | <b>2</b>      |
| <b>Generic Total:</b>            |                        |   |             | <b>7</b>      |

# PWR SRO Written Examination Outline

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| System/Mode | System Title  | KA Number | Title  | SRO Value | 10 CFR 55            |
|-------------|---|-----------|--|-----------|----------------------|
| Tier        | 1   | Group     | 1  |           |                      |
| 000009      | Small Break LOCA                                    | EA2.25    | Ability to determine or interpret the following as they apply to a small break LOCA:: Reactor trip setpoints                           | 4.1       | 43.5 / 45.13         |
| 000017      | Reactor Coolant Pump Malfunctions (Loss of RC Flow) | 2.1.32    | : Ability to explain and apply all system limits and precautions.  | 3.8       | 41.10 / 43.2 / 45.12 |
| 000025      | Loss of Residual Heat Removal System                | AA2.07    | Ability to determine and interpret the following as they apply to the Loss of Residual Heat Removal System:: Pump cavitation           | 3.7       | 43.5 / 45.13         |
| 000026      | Loss of Component Cooling Water                     | AA2.02    | Ability to determine and interpret the following as they apply to the Loss of Component Cooling Water:: The cause of possible CCW loss | 3.6       | 43.5 / 45.13         |
| 000038      | Steam Generator Tube Rupture                        | 2.4.30    | : Knowledge of which events related to system operations/status should be reported to outside agencies.                                | 3.6       | 43.5 / 45.11         |
| CE-E02      | Reactor Trip Recovery                               | 2.2.25    | : Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.                             | 3.7       | 43.2                 |

## PWR SRO Written Examination Outline (Continued)

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| System/Mode | System Title                  | KA Number | Title  | SRO Value | 10 CFR 55    |
|-------------|-------------------------------|-----------|--|-----------|--------------|
| Tier        | 1                             | Group     | 2  |           |              |
| 000068      | Control Room Evacuation       | AA2.10    | Ability to determine and interpret the following as they apply to the Control Room Evacuation::<br>Source range count rate   | 4.4*      | 43.5 / 45.13 |
| 000074      | Inadequate Core Cooling       | EA2.02    | Ability to determine or interpret the following as they apply to a Inadequate Core Cooling::<br>Availability of main or auxiliary feedwater  | 4.6       | 43.5 / 45.13 |
| 000076      | High Reactor Coolant Activity | 2.1.14    | : Knowledge of system status criteria which require the notification of plant personnel.   | 3.3       | 43.5 / 45.12 |
| CE-E09      | Functional Recovery           | EA2.01    | Ability to determine and interpret the following as they apply to the (Functional Recovery): Facility conditions and selection of appropriate procedures during abnormal and emergency operations. | 4.4       | 43.5 / 45.13 |



## PWR SRO Written Examination Outline (Continued)

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| System/Mode | System Title                                 | KA Number | Title  | SRO Value | 10 CFR 55                  |
|-------------|--|-----------|--|-----------|----------------------------|
| Tier        | 2  | Group     | 1  |           |                            |
| 004000      | Chemical and Volume Control System           | A2.11     | 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:: Loss of IAS                       | 4.2       | 41.5 / 43.5 / 45.3 / 45.5  |
| 006000      | Emergency Core Cooling 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         |
| 007000      | Pressurizer Relief Tank / Quench Tank System | A2.05     | Ability to (a) predict the impacts of the following malfunctions or operations on the P S; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:: Exceeding PRT high-pressure limits | 3.6       | 41.5 / 43.5 / 45.3 / 45.13 |
| 063000      | D.C. Electrical Distribution                 | 2.2.22    | : Knowledge of limiting conditions for operations and safety limits.   | 4.1       | 43.2 / 45.2                |
| 103000      | Containment System                           | 2.1.32    | : Ability to explain and apply all system limits and precautions.  | 3.8       | 41.10 / 43.2 / 45.12       |

## PWR SRO Written Examination Outline (Continued)

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| System/Mode | System Title                   | KA Number | Title   | SRO Value | 10 CFR 55                  |
|-------------|--------------------------------|-----------|---|-----------|----------------------------|
| Tier        | 2                              | Group     | 2   |           |                            |
| 001000      | Control Rod Drive System       | A2.13     | Ability to (a) predict the impacts of the following malfunction or operations on the CRDS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:: ATWS | 4.6       | 41.5 / 43.5 / 45.3 / 45.13 |
| 002000      | Reactor Coolant System         | 2.2.22    | : Knowledge of limiting conditions for operations and safety limits.  | 4.1       | 43.2 / 45.2                |
| 034000      | Fuel Handling Equipment System | K4.01     | Knowledge of design feature(s) and/or interlock(s) which provide for the following:: Fuel protection from binding and dropping  | 3.4       | 41.7                       |

## PWR SRO Written Examination Outline (Last Page)

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| System/Mode | System Title                     | KA Number | Title   | SRO Value | 10 CFR 55            |
|-------------|----------------------------------|-----------|---|-----------|----------------------|
| Tier        | 3                                | Group     | 4   |           |                      |
| 000000      | Generic Knowledges and Abilities | 2.1.04    | : Knowledge of shift staffing requirements.   | 3.4       | 41.10 / 43.2         |
| 000000      | Generic Knowledges and Abilities | 2.1.34    | : Ability to maintain primary and secondary plant chemistry within allowable limits.                          | 2.9       | 41.10 / 43.5 / 45.12 |
| 000000      | Generic Knowledges and Abilities | 2.2.05    | : Knowledge of the process for making changes in the facility as described in the safety analysis report.     | 2.7       | 43.3 / 45.13         |
| 000000      | Generic Knowledges and Abilities | 2.2.19    | : Knowledge of maintenance work order requirements.   | 3.1       | 43.5 / 45.13         |
| 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         |
| 000000      | Generic Knowledges and Abilities | 2.4.29    | : Knowledge of the emergency plan.  | 4.0       | 43.5 / 45.11         |
| 000000      | Generic Knowledges and Abilities | 2.4.45    | : Ability to prioritize and interpret the significance of each annunciator or alarm.                          | 3.6       | 43.5 / 45.3 / 45.12  |

| Tier/Group | Randomly Selected K/A | Description   | Reason for Rejection                                      |
|------------|-----------------------|---|---|
| 1/1        | 000008 AA2.05         | Ability to determine and interpret the following as they apply to the Pressurizer Vapor Space Accident:PORV isolation (block) valve switches and indicators                                   | not SRO level K/A   |
| 1/1        | 000017 2.4.30         | Knowledge of which events related to system operations/status should be reported to outside agencies.   | RCP Malfunction would not be reported to outside agencies |
| 1/1        | 000017 AA2.07         | Ability to determine and interpret the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow):Calculation of expected values of flow in the loop with RCP secured | Operators do not calculate flow in this situation         |
| 1/1        | 000022 2.4.30         | Knowledge of which events related to system operations/status should be reported to outside agencies.   | Event would not be reported                               |

| Tier/Group | Randomly Selected K/A | Description   | Reason for Rejection                  |
|------------|-----------------------|---|---------------------------------------|
| 1/1        | 000038 EA2.05         | Ability to determine or interpret the following as they apply to a SGTR:Causes and consequences of shrink and swell in S/Gs   | Difficult to write SRO level question |
| 1/1        | 000056 AA2.29         | Ability to determine and interpret the following as they apply to the Loss of Offsite Power:Service water booster pump ammeter and flowmeter  | No service water booster pump at FCS  |
| 1/1        | 000056 AA2.28         | Ability to determine and interpret the following as they apply to the Loss of Offsite Power:Auxiliary building gas treatment indicator  | No AB gas treatment indicator at FCS  |
| 1/1        | 000062 AA2.06         | Ability to determine and interpret the following as they apply to the Loss of Nuclear Service Water:The length of time after the loss of SWS flow to a component before that component may be damaged | No specified time limits at FCS       |

| Tier/Group | Randomly Selected K/A | Description   | Reason for Rejection                                    |
|------------|-----------------------|---|---|
| 1/2        | 000003 2.1.33         | Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.   | Will be evaluated in operating exam                     |
| 1/2        | 000003 AA2.02         | Ability to determine and interpret the following as they apply to the Dropped Control Rod:Signal inputs to rod control system   | Rod Control is manual at FCS                            |
| 1/2        | 000005 AA2.04         | Ability to determine and interpret the following as they apply to the Inoperable / Stuck Control Rod:Interpretation of computer in-core TC map for dropped rod location | Not used by operators to determine dropped rod location |
| 1/2        | 000028 2.2.25         | Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.  | No Tech Spec on pressurizer level                       |

| Tier/Group | Randomly Selected K/A | Description   | Reason for Rejection                                       |
|------------|-----------------------|---|--|
| 1/2        | 000033 AA2.12         | Ability to determine and interpret the following as they apply to the Loss of Intermediate Range Nuclear Instrumentation:Maximum allowable channel disagreement | No maximum allowable for wide range NI's, not used for RPS |
| 1/2        | 000037 AA2.13         | Ability to determine and interpret the following as they apply to the Steam Generator Tube Leak:Which S/G is leaking  | Will be evaluated in operating exam                        |
| 1/2        | 000037 AA2.02         | Ability to determine and interpret the following as they apply to the Steam Generator Tube Leak:Agreement/disagreement among redundant radiation monitors       | Will be evaluated during simulator scenario                |
| 1/2        | CE-A13 2.4.49         | Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.                            | RO level knowledge, Difficult to write SRO level question  |

| Tier/Group | Randomly Selected K/A | Description  | Reason for Rejection                                       |
|------------|-----------------------|--|--|
| 2/1        | 039000 2.4.30         | Knowledge of which events related to system operations/status should be reported to outside agencies.  | Would not be reported to outside agencies                  |
| 2/1        | 062000 A2.09          | Ability to (a) predict the impacts of the following malfunctions or operations on the ac distribution system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:Consequences of exceeding current limitations | Difficult to write operationally valid SRO level Question. |
| 2/2        | 001000 A2.20          | Ability to (a) predict the impacts of the following malfunction or operations on the CRDS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:Isolation of left coil on affected rod to prevent coil burnout    | Does not apply to FCS CRD system                           |
| 2/2        | 056000 2.4.49         | Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.   | Not an SRO Task  |



| Tier/Group | Randomly Selected K/A | Description   | Reason for Rejection                           |
|------------|-----------------------|---|--|
| 2/2        | 056000 A2.12          | Ability to (a) predict the impacts of the following malfunctions or operations on the Condensate System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:Opening of the heater string bypass valve | Low SRO importance, no plant specific priority |
| 3/4        | 000000 2.2.22         | Knowledge of limiting conditions for operations and safety limits.  | Already used as system generic                 |
| 3/4        | 000000 2.3.06         | Knowledge of the requirements for reviewing and approving release permits.  | Will be evaluated in operating exam            |
| 3/4        | 000000 2.2.33         | Knowledge of control rod programming.   | Not an RO or SRO task at FCS                   |

| Facility: <u>Fort Calhoun</u>   |               | Date of Examination: <u>07/11/05</u>  |
|---|---------------|---|
| Examination Level : RO  |               | Operating Test Number: _____  |
| Administrative Topic<br>(see Note)  | Type<br>Code* | Describe activity to be performed   |
| Conduct of Operations   | M             | Administrative JPM – Calculate shutdown margin with a known inoperable CEA<br>K/A 2.1.7 (RO 3.7)  |
| Conduct of Operations   | N             | Administrative JPM – Determine minimum HPSI flow required to remove decay heat following sump strainer blockage<br>K/A 2.1.25 (RO 2.8)                                |
| Equipment Control   | N             | Administrative JPM - Verify boration path during plant shutdown conditions with equipment out of service<br>K/A 2.2.24 (RO 2.6)                                       |
| Radiation Control   | M             | Administrative JPM – RCA Entry and Exit (Discover spill of potentially radioactive liquid)<br>K/A 2.3.1 (RO 2.6)<br>(Conducted in Radiation Worker Training Facility) |
| Emergency Plan  |               |   |
| 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  |               |   |
| (D)irect from bank ( $\leq 3$ for ROs; $\leq 4$ for SROs & RO retakes)  |               |   |
| (N)ew or (M)odified from bank ( $\geq 1$ )  |               |   |
| (P)revious 2 exams ( $\leq 1$ ; randomly selected)  |               |   |
| (S)imulator   |               |   |

| Facility: <u>Fort Calhoun</u>   |               | Date of Examination: <u>07/11/05</u>   |
|---|---------------|--|
| Examination Level : SRO   |               | Operating Test Number: _____   |
| Administrative Topic<br>(see Note)  | Type<br>Code* | Describe activity to be performed  |
| Conduct of Operations   | M             | Administrative JPM – Review shutdown margin calculation with a known inoperable CEA<br>K/A 2.1.7 (SRO 3.7)                   |
| Conduct of Operations   | M             | Administrative JPM – Determine equipment operability requirements during mode transition<br>K/A 2.1.22 (SRO 3.3)             |
| Equipment Control   | D             | Administrative JPM – Review required shift surveillance<br>OP-ST-SHIFT-0001<br>K/A 2.2.12 (SRO 3.4)                          |
| Radiation Control   | N             | Administrative JPM – Authorize Waste Gas Decay Tank Release<br>K/A 2.3.6 (SRO 3.1)   |
| Emergency Plan  | M             | Administrative JPM – Classify Event and make Protective Action Recommendations<br>K/A 2.4.41 (SRO 4.1), K/A 2.4.44 (SRO 4.0) |
| 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:<br>(C)ontrol room<br>(D)irect from bank ( $\leq 3$ for ROs; $\leq 4$ for SROs & RO retakes)<br>(N)ew or (M)odified from bank ( $\geq 1$ )<br>(P)revious 2 exams ( $\leq 1$ ; randomly selected)<br>(S)imulator |               |  |

| Facility: <u>Fort Calhoun</u>  | Date of Examination: <u>07/11/05</u>           |                 |
|--|--|-----------------|
| Exam Level : RO  | Operating Test No.: _____                      |                 |
| Control Room Systems@ (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)  |  |                 |
| System / JPM Title   | Type Code*                                     | Safety Function |
| a. 006 / JPM-0329 Fill Safety Injection Tank<br>K/A 006000 A3.01 (RO 4.0 / SRO 3.9)  | S , D  | 2               |
| b. 022 / JPM-0718 Place Containment Cooling Unit in Service<br>K/A 022000 A4.01 (RO 3.6 / SRO 3.6)   | S , D  | 5               |
| c. 012 / JPM-0778 Adjust T-Cold Calibration<br>K/A 012000 A1.01 (RO 2.9 / SRO 3.4)   | S , D  | 7               |
| d. 086 JPM-NRC4 Restore CR Ventilation following smoke alarm<br>K/A 000067 AA1.05 (RO 3.0 / SRO 3.1)   | S, D, A  | 8               |
| e. 062 / JPM-0042 Cross Connect Instrument Busses<br>K/A 062000 A2.10 (RO 3.0 / SRO 3.3)   | S, D   | 6               |
| f. 003 / JPM-0613A Shutdown a Reactor Coolant Pump<br>K/A 003000 A4.06 (RO 2.9 / SRO 2.9)  | S, M, A, L                                     | 4P              |
| g. 061 / AFW Functional Test of Circuits and Components<br>K/A 061000 K4.02 (RO 4.5 / SRO 4.6)   | S, N, L  | 4S              |
| h. 003 / Reduce RCS Pressure using Auxiliary Spray<br>K/A 010000 A4.01 (RO 3.7 / SRO 3.5)  | S, N   | 3               |
| In-Plant Systems@ (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)  |  |                 |
| i. 078 / JPM-0225 Air Compressor Backup Cooling<br>K/A 078000 K1.04 (RO 2.6 / SRO 2.9)   | M, E   | 8               |
| j. 064 / Local Emergency Start of a Diesel Generator<br>K/A 064000 A4.06 (RO 3.9 / SRO 3.9)  | N, A, E  | 6               |
| k. 071 / Transfer waste gas from vent header to decay tank<br>K/A 071000 A4.05 (RO 2.6 / SRO 2.6)  | D, P, R, A                                     | 9               |
| @ All control room (and in-plant) systems must be different and 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   | $\leq 9 / \leq 8 / \leq 4$                     |                 |
| (E)mergency or abnormal in-plant   | $\geq 1 / \geq 1 / \geq 1$                     |                 |
| (L)ow-Power  | $\geq 1 / \geq 1 / \geq 1$                     |                 |
| (N)ew or (M)odified from bank including 1(A)   | $\geq 2 / \geq 2 / \geq 1$                     |                 |
| (P)revious 2 exams   | $\leq 3 / \leq 3 / \leq 2$ (randomly selected) |                 |
| (R)CA  | $\geq 1 / \geq 1 / \geq 1$                     |                 |
| (S)imulator  |  |                 |

| Facility: <u>Fort Calhoun</u>  |  | Date of Examination: <u>07/11/05</u> |
|--|--|--------------------------------------|
| Exam Level : SRO-I   |  | Operating Test No.: _____            |
| Control Room Systems@ (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)  |  |                                      |
| System / JPM Title   | Type Code*                                     | Safety Function                      |
| a. 006 / JPM-0329 Fill Safety Injection Tank<br>K/A 006000 A3.01 (RO 4.0 / SRO 3.9)  | S , D  | 2                                    |
| b. 022 / JPM-0718 Place Containment Cooling Unit in Service<br>K/A 022000 A4.01 (RO 3.6 / SRO 3.6)   | S , D  | 5                                    |
| c. 012 / JPM-0778 Adjust T-Cold Calibration<br>K/A 012000 A1.01 (RO 2.9 / SRO 3.4)   | S , D  | 7                                    |
| d. 086 JPM-NRC4 Restore CR Ventilation following smoke alarm<br>K/A 000067 AA1.05 (RO 3.0 / SRO 3.1)   | S, D, A  | 8                                    |
| e.   |  |                                      |
| f. 003 / JPM-0613A Shutdown a Reactor Coolant Pump<br>K/A 003000 A4.06 (RO 2.9 / SRO 2.9)  | S, M, A, L                                     | 4P                                   |
| g. 061 / AFW Functional Test of Circuits and Components<br>K/A 061000 K4.02 (RO 4.5 / SRO 4.6)   | S, N, L  | 4S                                   |
| h. 003 / Reduce RCS Pressure using Auxiliary Spray<br>K/A 010000 A4.01 (RO 3.7 / SRO 3.5)  | S, N   | 3                                    |
| In-Plant Systems@ (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)  |  |                                      |
| i. 078 / JPM-0225 Air Compressor Backup Cooling<br>K/A 078000 K1.04 (RO 2.6 / SRO 2.9)   | M, E   | 8                                    |
| j. 064 / Local Emergency Start of a Diesel Generator<br>K/A 064000 A4.06 (RO 3.9 / SRO 3.9)  | N, A, E  | 6                                    |
| k. 071 / Transfer waste gas from vent header to decay tank<br>K/A 071000 A4.05 (RO 2.6 / SRO 2.6)  | D, P, R, A                                     | 9                                    |
| @ All control room (and in-plant) systems must be different and 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   | $\leq 9 / \leq 8 / \leq 4$                     |                                      |
| (E)mergency or abnormal in-plant   | $\geq 1 / \geq 1 / \geq 1$                     |                                      |
| (L)ow-Power  | $\geq 1 / \geq 1 / \geq 1$                     |                                      |
| (N)ew or (M)odified from bank including 1(A)   | $\geq 2 / \geq 2 / \geq 1$                     |                                      |
| (P)revious 2 exams   | $\leq 3 / \leq 3 / \leq 2$ (randomly selected) |                                      |
| (R)CA  | $\geq 1 / \geq 1 / \geq 1$                     |                                      |
| (S)imulator  |  |                                      |

|   |  |                                      |
|---|--|--------------------------------------|
| Facility: <u>Fort Calhoun</u>   |  | Date of Examination: <u>07/11/05</u> |
| Exam Level : <u>SRO-U</u>   |  | Operating Test No.: _____            |
| Control Room Systems@ (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)   |  |                                      |
| System / JPM Title  | Type Code*                                     | Safety Function                      |
| a.  |  |                                      |
| b.  |  |                                      |
| c.  |  |                                      |
| d.  |  |                                      |
| e.  |  |                                      |
| f. 003 / JPM-0613A Shutdown a Reactor Coolant Pump<br>K/A 003000 A4.06 (RO 2.9 / SRO 2.9)   | S, M, A, L                                     | 4P                                   |
| g. 061 / AFW Functional Test of Circuits and Components<br>K/A 061000 K4.02 (RO 4.5 / SRO 4.6)  | S, N, L  | 4S                                   |
| h.  |  |                                      |
| In-Plant Systems@ (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)   |  |                                      |
| i. 078 / JPM-0225 Air Compressor Backup Cooling<br>K/A 078000 K1.04 (RO 2.6 / SRO 2.9)  | M, E   | 8                                    |
| j. 064 / Local Emergency Start of a Diesel Generator<br>K/A 064000 A4.06 (RO 3.9 / SRO 3.9)   | N, A, E  | 6                                    |
| k. 071 / Transfer waste gas from vent header to decay tank<br>K/A 071000 A4.05 (RO 2.6 / SRO 2.6)   | D, P, R, A                                     | 9                                    |
| @ All control room (and in-plant) systems must be different and serve different safety functions;<br>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  | $\leq 9 / \leq 8 / \leq 4$                     |                                      |
| (E)mergency or abnormal in-plant  | $\geq 1 / \geq 1 / \geq 1$                     |                                      |
| (L)ow-Power   | $\geq 1 / \geq 1 / \geq 1$                     |                                      |
| (N)ew or (M)odified from bank including 1(A)  | $\geq 2 / \geq 2 / \geq 1$                     |                                      |
| (P)revious 2 exams  | $\leq 3 / \leq 3 / \leq 2$ (randomly selected) |                                      |
| (R)CA   | $\geq 1 / \geq 1 / \geq 1$                     |                                      |
| (S)imulator   |  |                                      |

| Facility: Fort Calhoun  | Scenario No: 2005 - 1 | Op-Test No. _____         |   |
|---|-----------------------|---------------------------|---|
| Examiners: _____<br>_____   |                       | Operators: _____<br>_____ |   |
| Initial Conditions: 100% Power  |                       |                           |   |
| Turnover: CCW-Pump, AC-3A and Diesel Driven AFW pump FW-54 are tagged out of service<br>Maintain Power Operations |                       |                           |   |
| Event No.   | Malf No.              | Event Type*               | Event Description   |
| 1   |                       | I - ATC                   | Letdown flow transmitter fails high – letdown isolates                |
| 2   |                       | I - BOP                   | S/G pressure transmitter fails high – manual FW flow control required |
| 3   |                       | C - BOP                   | IA compressor trips, standby does not load                            |
| 4   |                       | C – ATC                   | Dropped CEA – T/S Entry   |
| 5   |                       | R – ATC<br>N - BOP        | TS Required power reduction to 70%                                    |
| 6   |                       | C - ATC                   | Instrument Bus Fails – T/S Entry                                      |
| 7   |                       | M - ALL                   | Main steam line break inside containment                              |
| 8   |                       | C - BOP                   | Turbine fails to trip   |
| 9   |                       | I – ATC<br>or BOP         | CPHS Fails to Actuate   |
|   |                       |                           |   |
|   |                       |                           |   |
|   |                       |                           |   |
|   |                       |                           |   |
| * (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor  |                       |                           |   |

| Facility: Fort Calhoun  |          | Scenario No: 2005 - 2 |   | Op-Test No. _____ |  |
|---|----------|-----------------------|---|-------------------|--|
| Examiners: _____<br>_____   |          |                       | Operators: _____<br>_____   |                   |  |
| Initial Conditions: 100% Power  |          |                       |   |                   |  |
| Turnover: CCW-Pump, AC-3A and Diesel Driven AFW pump FW-54 are tagged out of service<br>Maintain Power Operations |          |                       |   |                   |  |
| Event No.   | Malf No. | Event Type*           | Event Description   |                   |  |
| 1   |          | I - ATC               | Power Range NI Channel Fails – T/S entry  |                   |  |
| 2   |          | I - BOP               | S/G flow transmitter fails low  |                   |  |
| 3   |          | C - BOP               | Bearing Water Pump Trips  |                   |  |
| 4   |          | I - ATC               | RCS T-hot fails – T/S entry   |                   |  |
| 5   |          | C - ATC               | Charging Pump degraded performance  |                   |  |
| 6   |          | M - ALL               | Steam Generator Tube Rupture  |                   |  |
| 7   |          | R - ATC               | 2 CEAs fail to insert – Emergency Boration Required   |                   |  |
| 8   |          | I - BOP               | RM-057 (Condenser offgas radiation monitor) fails “as is”<br>(Aux Steam Isolation valve, RC-978, does not get close signal) |                   |  |
|   |          |                       |   |                   |  |
|   |          |                       |   |                   |  |
|   |          |                       |   |                   |  |
|   |          |                       |   |                   |  |
|   |          |                       |   |                   |  |
| * (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor  |          |                       |   |                   |  |



| Facility: Fort Calhoun   | Scenario No: 2005 - 3 | Op-Test No. _____                  |   |
|--|-----------------------|------------------------------------|---|
| Examiners: _____<br>_____<br>_____   |                       | Operators: _____<br>_____<br>_____ |   |
| Initial Conditions: 50% Power  |                       |                                    |   |
| Turnover: Heater Drain pumps FW- 5A and FW-5C are tagged out of service. Power held at 50% pending repair of at least one of the heater drain pumps. |                       |                                    |   |
| Event No.  | Malf No.              | Event Type*                        | Event Description   |
| 1  |                       | C – ATC or BOP                     | D/G Radiator Leak – T/S Entry   |
| 2  |                       | I - BOP                            | PT-910 Fails High   |
| 3  |                       | I - ATC                            | Letdown heat exchanger temperature transmitter fails low                  |
| 4  |                       | C - BOP                            | Loss of 161 KV – T/S Entry  |
| 5  |                       | I - ATC                            | Pressurizer pressure transmitter fails high                               |
| 6  |                       | I - BOP                            | S/G level transmitter fails high  |
| 7  |                       | C - ATC                            | Raw Water header leak   |
| 8  |                       | M - ALL                            | LOCA with Loss of offsite power   |
| 9  |                       | C-BOP                              | Circulating Water Pump Breaker fails to open, D/G breaker does not close. |
|  |                       |                                    |   |
|  |                       |                                    |   |
|  |                       |                                    |   |
|  |                       |                                    |   |
|  |                       |                                    |   |
| * (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor   |                       |                                    |   |

| Facility: Fort Calhoun   | Scenario No: 2005 – 4 (spare) | Op-Test No. _____         |  |
|--|-------------------------------|---------------------------|--|
| Examiners: _____<br>_____  |                               | Operators: _____<br>_____ |  |
| Initial Conditions: 50% Power  |                               |                           |  |
| Turnover: Heater Drain pumps FW- 5A and FW-5C are tagged out of service. Power held at 50% pending repair of at least one of the heater drain pumps. |                               |                           |  |
| Event No.  | Malf No.                      | Event Type*               | Event Description                              |
| 1  |                               | I - ATC                   | VCT Level Transmitter Fails Low                |
| 2  |                               | I - BOP                   | S/G pressure transmitter fails low             |
| 3  |                               | I - ATC                   | RCS Flow transmitter failure – T/S Entry       |
| 4  |                               | I - BOP                   | Inadvertent AFAS actuation – T/S Entry         |
| 5  |                               | C - ATC                   | Instrument air to containment isolates         |
| 6  |                               | C - BOP                   | Loss of condenser vacuum                       |
| 7  |                               | M - ALL                   | Reactor Trip – no steam dump and bypass valves |
| 8  |                               | C - BOP                   | S/G safety valve sticks open                   |
|  |                               |                           |  |
|  |                               |                           |  |
|  |                               |                           |  |
|  |                               |                           |  |
|  |                               |                           |  |
|  |                               |                           |  |
|  |                               |                           |  |
| * (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor   |                               |                           |  |

## Simulator Scenario/Candidate Cross Reference

| Candidates     | Scenario One Position | Scenario Two Position | Scenario Three Position |
|----------------|-----------------------|-----------------------|-------------------------|
| RO1<br>RO4     | ATC                   | BOP                   |                         |
| RO2<br>RO5     |                       | ATC                   | BOP                     |
| RO3<br>RO6     | BOP                   |                       | ATC                     |
| USRO1<br>USRO2 | SRO                   | SRO                   | SRO                     |
| ISRO1          | ATC                   | BOP                   | SRO                     |
| ISRO2          | SRO                   | ATC                   | BOP                     |
| ISRO3          | BOP                   | SRO                   | ATC                     |

| Facility: FORT CALHOUN                    |   | Date of Exam: 7/11/05 |             |             |               |             |             |               |             |             | Operating Test No.: |             |             |                       |                                 |
|---|---|-----------------------|-------------|-------------|---------------|-------------|-------------|---------------|-------------|-------------|---------------------|-------------|-------------|-----------------------|---------------------------------|
| A<br>P<br>P<br>L<br>I<br>C<br>A<br>N<br>T | E<br>V<br>E<br>N<br>T<br><br>T<br>Y<br>P<br>E | Scenarios             |             |             |               |             |             |               |             |             |                     |             |             |                       |                                 |
|   |   | 1                     |             |             | 2             |             |             | 3             |             |             | 4                   |             |             | T<br>O<br>T<br>A<br>L | M<br>I<br>N<br>I<br>M<br>U<br>M |
|   |   | CREW POSITION         |             |             | CREW POSITION |             |             | CREW POSITION |             |             | CREW POSITION       |             |             |                       |                                 |
|   |   | S<br>R<br>O           | A<br>T<br>C | B<br>O<br>P | S<br>R<br>O   | A<br>T<br>C | B<br>O<br>P | S<br>R<br>O   | A<br>T<br>C | B<br>O<br>P | S<br>R<br>O         | A<br>T<br>C | B<br>O<br>P |                       |                                 |
| R01<br>R04                                | RO  |                       | 5           |             |               |             |             |               |             |             |                     |             | 1           | 1*                    |                                 |
|   | NOR   |                       |             |             |               |             |             |               |             |             |                     |             |             | 1*                    |                                 |
|   | SRO-I   |                       | 1,4,6       |             |               | 2,3,8       |             |               |             |             |                     |             | 6           | 4*                    |                                 |
|   | SRO-U   |                       | 7           |             |               | 6           |             |               |             |             |                     |             | 2           | 2                     |                                 |
|   | TS  |                       |             |             |               |             |             |               |             |             |                     |             |             | 2                     |                                 |
| R02<br>R05                                | RO  |                       |             |             | 7             |             |             |               |             |             |                     |             | 1           | 1*                    |                                 |
|   | NOR   |                       |             |             |               |             |             |               |             |             |                     |             |             | 1*                    |                                 |
|   | SRO-I   |                       |             |             | 1,4,5         |             |             | 2,4,6,7       |             |             |                     |             | 7           | 4*                    |                                 |
|   | SRO-U   |                       |             |             | 6             |             |             | 8             |             |             |                     |             | 2           | 2                     |                                 |
|   | TS  |                       |             |             |               |             |             |               |             |             |                     |             |             | 2                     |                                 |
| R03<br>R06                                | RO  |                       |             | 5           |               |             |             |               |             |             |                     |             | 1           | 1*                    |                                 |
|   | NOR   |                       |             |             |               |             |             |               |             |             |                     |             |             | 1*                    |                                 |
|   | SRO-I   |                       |             | 2,3,8       |               |             |             | 3,5,7         |             |             |                     |             | 6           | 4*                    |                                 |
|   | SRO-U   |                       |             | 7           |               |             |             | 8             |             |             |                     |             | 2           | 2                     |                                 |
|   | TS  |                       |             |             |               |             |             |               |             |             |                     |             |             | 2                     |                                 |
| USR01<br>USR02                            | RO  |                       |             |             |               |             |             |               |             |             |                     |             |             | 1*                    |                                 |
|   | NOR   |                       |             |             |               |             |             |               |             |             |                     |             |             | 1*                    |                                 |
|   | SRO-I   |                       |             |             |               |             |             |               |             |             |                     |             |             | 4*                    |                                 |
|   | SRO-U   |                       |             |             |               |             |             |               |             |             |                     |             |             | 2                     |                                 |
|   | TS  | 4,6                   |             |             | 1,4           |             |             | 1,4           |             |             |                     |             | 6           | 2                     |                                 |

Instructions:

1. Circle 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 do one scenario, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position.
2. 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.
3. 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 requirement.

Author:       Jerry Kunko      

NRC Reviewer: \_\_\_\_\_

Facility: Fort Calhoun Date of Examination: 7/11/05 Operating Test No.:

| Competencies                                | Ro1 Ro4            |            | Ro2                |   |            |                 | APPLICANTS Ro3 Ro6 |   |                 |               | USRo1, USRo2     |   |                   |                  |                  |   |
|---|--------------------|------------|--------------------|---|------------|-----------------|--------------------|---|-----------------|---------------|------------------|---|-------------------|------------------|------------------|---|
|   | RO/SRO-<br>I/SRO-U |            | RO/SRO-<br>I/SRO-U |   |            |                 | RO/SRO-<br>I/SRO-U |   |                 |               | RO/SRO-<br>SRO-U |   |                   |                  |                  |   |
|   | SCENARIO           |            |                    |   | SCENARIO   |                 |                    |   | SCENARIO        |               |                  |   | SCENARIO          |                  |                  |   |
|   | 1                  | 2          | 3                  | 4 | 1          | 2               | 3                  | 4 | 1               | 2             | 3                | 4 | 1                 | 2                | 3                | 4 |
|   | ATC                | BOP        |                    |   | ATC        | BOP             |                    |   | BOP             | ATC           |                  |   | SR0               | SR0              | SR0              |   |
| Interpret/Diagnose<br>Events and Conditions | 1,4<br>6           | 2,3<br>6,8 |                    |   | 1,4<br>5,7 | 2,4<br>6,8<br>9 |                    |   | 2,3<br>8        | 3,5<br>7,8    |                  |   | 1,2<br>3,6<br>8,9 | 1,2<br>4,6       | 2<br>3<br>8      |   |
| Comply With and<br>Use Procedures (1)       | 5<br>7             | 3,6<br>8   |                    |   | 1,4<br>6,7 | 4,6<br>8        |                    |   | 5<br>7<br>8     | 5<br>7<br>8   |                  |   | 5<br>7<br>8       | 1,<br>6          | 4<br>7<br>8      |   |
| Operate Control<br>Boards (2)               | 1<br>5<br>6,7      | 2,3<br>6,8 |                    |   | 1,6<br>7   | 2,4<br>6,9      |                    |   | 2,7<br>3<br>5,8 | 3<br>5<br>7,8 |                  |   |                   |                  |                  |   |
| Communicate<br>and Interact                 | 1,4<br>5,7         | 2,3<br>6,8 |                    |   | 1,4<br>6,7 | 2,4<br>6,8<br>9 |                    |   | 2<br>5<br>8     | 3<br>5<br>7,8 |                  |   | 1,2<br>3,4<br>7,8 | 1<br>2<br>4<br>6 | 1<br>4<br>7<br>8 |   |
| Demonstrate<br>Supervisory Ability (3)      |                    |            |                    |   |            |                 |                    |   |                 |               |                  |   | 2<br>4<br>6,7     | 1<br>4<br>6      | 1<br>4<br>7<br>8 |   |
| Comply With and<br>Use Tech. Specs. (3)     |                    |            |                    |   |            |                 |                    |   |                 |               |                  |   | 4<br>6            | 1<br>4           | 1<br>4           |   |

Notes:  
 (1) Includes Technical Specification compliance for an RO.  
 (2) Optional for an SRO-U.  
 (3) Only applicable to SROs.

Instructions:

Circle the applicants' license type and enter one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant.

Author: Jan Korke

NRC Reviewer: \_\_\_\_\_

| Facility:                                 |   | Date of Exam: |             |             |               |             |             |               |             |             | Operating Test No.: |             |             |                       |                                 |
|---|---|---------------|-------------|-------------|---------------|-------------|-------------|---------------|-------------|-------------|---------------------|-------------|-------------|-----------------------|---------------------------------|
| A<br>P<br>P<br>L<br>I<br>C<br>A<br>N<br>T | E<br>V<br>E<br>N<br>T<br><br>T<br>Y<br>P<br>E | Scenarios     |             |             |               |             |             |               |             |             |                     |             |             |                       |                                 |
|   |   | 1             |             |             | 2             |             |             | 3             |             |             | 4                   |             |             | T<br>O<br>T<br>A<br>L | M<br>I<br>N<br>I<br>M<br>U<br>M |
|   |   | CREW POSITION |             |             | CREW POSITION |             |             | CREW POSITION |             |             | CREW POSITION       |             |             |                       |                                 |
|   |   | S<br>R<br>O   | A<br>T<br>C | B<br>O<br>P | S<br>R<br>O   | A<br>T<br>C | B<br>O<br>P | S<br>R<br>O   | A<br>T<br>C | B<br>O<br>P | S<br>R<br>O         | A<br>T<br>C | B<br>O<br>P |                       |                                 |
| ISR01<br><br>SRO-I<br>SRO-U               | RX  |               | 5           |             |               |             |             |               |             |             |                     |             |             | 1                     | 1*                              |
|   | NOR   |               |             |             |               |             |             |               |             |             |                     |             |             |                       | 1*                              |
|   | I/C   |               | 1,4,6       |             |               |             | 2,3,8       |               |             |             |                     |             |             | 6                     | 4*                              |
|   | MAJ   |               | 7           |             |               |             | 6           |               |             |             |                     |             |             | 2                     | 2                               |
|   | TS  |               |             |             |               |             |             |               | 1,4         |             |                     |             |             | 2                     | 2                               |
| ISR02<br><br>SRO-I<br>SRO-U               | RX  |               |             |             |               | 7           |             |               |             |             |                     |             |             | 1                     | 1*                              |
|   | NOR   |               |             |             |               |             |             |               |             |             |                     |             |             |                       | 1*                              |
|   | I/C   |               |             |             |               | 1,4,5       |             |               |             | 2,4,6,9     |                     |             |             | 7                     | 4*                              |
|   | MAJ   |               |             |             |               | 6           |             |               |             | 8           |                     |             |             | 2                     | 2                               |
|   | TS  | 4,6           |             |             |               |             |             |               |             |             |                     |             |             | 2                     | 2                               |
| ISR03<br><br>SRO-I<br>SRO-U               | RX  |               |             |             |               |             |             |               |             |             |                     |             |             |                       | 1*                              |
|   | NOR   |               |             | 5           |               |             |             |               |             |             |                     |             |             | 1                     | 1*                              |
|   | I/C   |               |             | 2,3,8       |               |             |             |               | 3,5,7       |             |                     |             |             | 6                     | 4*                              |
|   | MAJ   |               |             | 7           |               |             |             |               | 8           |             |                     |             |             | 2                     | 2                               |
|   | TS  |               |             |             | 1,4           |             |             |               |             |             |                     |             |             | 2                     | 2                               |
| RO  | RX  |               |             |             |               |             |             |               |             |             |                     |             |             |                       | 1*                              |
| SRO-I                                     | NOR   |               |             |             |               |             |             |               |             |             |                     |             |             |                       | 1*                              |
| SRO-I                                     | I/C   |               |             |             |               |             |             |               |             |             |                     |             |             |                       | 4*                              |
| SRO-U                                     | MAJ   |               |             |             |               |             |             |               |             |             |                     |             |             |                       | 2                               |
| SRO-U                                     | TS  |               |             |             |               |             |             |               |             |             |                     |             |             |                       | 2                               |

Instructions:

1. Circle 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 do one scenario, including at least two instrument or component (I/C) malfunctions and one major transient, in the ATC position.
2. 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.
3. 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 requirement.

Author:

*Jean Konku*

NRC Reviewer:

| Facility: <i>Fort Calhoun</i> Date of Examination: <i>7/11/05</i> Operating Test No.: |                                 |                          |                                  |   |  |                          |                                      |   |                                      |                                    |                                    |   |                                 |   |   |   |
|---|---------------------------------|--------------------------|----------------------------------|---|--|--------------------------|--------------------------------------|---|--------------------------------------|------------------------------------|------------------------------------|---|---------------------------------|---|---|---|
| Competencies  | <i>ISRO1</i>                    |                          |                                  |   | <i>ISRO2</i> APPLICANTS                |                          |                                      |   | <i>ISRO3</i>                         |                                    |                                    |   |                                 |   |   |   |
|   | <i>RO/SRO</i><br><i>U/SRO-U</i> |                          |                                  |   | <i>RO/SRO</i><br><i>U/SRO-U</i>        |                          |                                      |   | <i>RO/SRO</i><br><i>U/SRO-U</i>      |                                    |                                    |   | <i>RO/SRO</i><br><i>U/SRO-U</i> |   |   |   |
|   | SCENARIO                        |                          |                                  |   | SCENARIO                               |                          |                                      |   | SCENARIO                             |                                    |                                    |   | SCENARIO                        |   |   |   |
|   | 1                               | 2                        | 3                                | 4 | 1                                      | 2                        | 3                                    | 4 | 1                                    | 2                                  | 3                                  | 4 | 1                               | 2 | 3 | 4 |
|   | <i>ATC</i>                      | <i>BoP</i>               | <i>SRo</i>                       |   | <i>SRo</i>                             | <i>ATC</i>               | <i>BoP</i>                           |   | <i>BoP</i>                           | <i>SRo</i>                         | <i>ATC</i>                         |   |                                 |   |   |   |
| Interpret/Diagnose Events and Conditions  | <i>1,4</i><br><i>6</i>          | <i>2,3</i><br><i>6,8</i> | <i>2</i><br><i>3</i><br><i>8</i> |   | <i>1,2</i><br><i>3,6</i><br><i>8,9</i> | <i>1,4</i><br><i>5,7</i> | <i>2,4</i><br><i>6,8</i>             |   | <i>2</i><br><i>3</i><br><i>8</i>     | <i>1,2</i><br><i>4,6</i>           | <i>3,5</i><br><i>7,8</i>           |   |                                 |   |   |   |
| Comply With and Use Procedures (1)  | <i>5</i><br><i>7</i>            | <i>3,6</i><br><i>8</i>   | <i>4</i><br><i>7</i><br><i>8</i> |   | <i>5</i><br><i>7</i><br><i>8</i>       | <i>1,4</i><br><i>6,7</i> | <i>4,6</i><br><i>8</i>               |   | <i>5</i><br><i>7</i><br><i>8</i>     | <i>1</i><br><i>6</i>               | <i>5</i><br><i>7</i><br><i>8</i>   |   |                                 |   |   |   |
| Operate Control Boards (2)  | <i>1,5</i><br><i>6,7</i>        | <i>2,3</i><br><i>6,8</i> |                                  |   |  | <i>1,6</i><br><i>7</i>   | <i>2,4</i><br><i>6,9</i>             |   | <i>2,3</i><br><i>5,7</i><br><i>8</i> |                                    | <i>3</i><br><i>5</i><br><i>7,8</i> |   |                                 |   |   |   |
| Communicate and Interact  | <i>1,4</i><br><i>5,7</i>        | <i>2,3</i><br><i>6,8</i> | <i>1,4</i><br><i>7,8</i>         |   | <i>1,2</i><br><i>3,4</i><br><i>7,8</i> | <i>1,4</i><br><i>6,7</i> | <i>2,4</i><br><i>6,8</i><br><i>9</i> |   | <i>2</i><br><i>5</i><br><i>8</i>     | <i>1</i><br><i>2</i><br><i>4,6</i> | <i>3,5</i><br><i>7,8</i>           |   |                                 |   |   |   |
| Demonstrate Supervisory Ability (3)   |                                 |                          | <i>1,4</i><br><i>7,8</i>         |   | <i>2</i><br><i>4</i><br><i>6,7</i>     |                          |                                      |   |                                      | <i>1</i><br><i>4</i><br><i>6</i>   |                                    |   |                                 |   |   |   |
| Comply With and Use Tech. Specs. (3)  |                                 |                          | <i>1</i><br><i>4</i>             |   | <i>4</i><br><i>6</i>                   |                          |                                      |   |                                      | <i>1</i><br><i>4</i>               |                                    |   |                                 |   |   |   |

Notes:  
 (1) Includes Technical Specification compliance for an RO.  
 (2) Optional for an SRO-U.  
 (3) Only applicable to SROs.

Instructions:

Circle the applicants' license type and enter one or more event numbers that will allow the examiners to evaluate every applicable competency for every applicant.

Author:

*Jan Kunkle*

NRC Reviewer:

\_\_\_\_\_

1. Pre-Examination

I acknowledge that I have acquired specialized knowledge about the NRC licensing examinations scheduled for the week(s) of 1/10/05 as of the date of my signature. I agree that I will not knowingly divulge any information about these examinations to any persons who have not been authorized by the NRC chief examiner. I understand that I am not to instruct, evaluate, or provide performance feedback to those applicants scheduled to be administered these licensing examinations from this date until completion of examination administration, except as specifically noted below and authorized by the NRC (e.g., acting as a simulator booth operator or communicator is acceptable if the individual does not select the training content or provide direct or indirect feedback). Furthermore, I am aware of the physical security measures and requirements (as documented in the facility licensee's procedures) and understand that violation of the conditions of this agreement may result in cancellation of the examinations and/or an enforcement action against me or the facility licensee. I will immediately report to facility management or the NRC chief examiner any indications or suggestions that examination security may have been compromised.

2. Post-Examination

To the best of my knowledge, I did not divulge to any unauthorized persons any information concerning the NRC licensing examinations administered during the week(s) of \_\_\_\_\_. From the date that I entered into this security agreement until the completion of examination administration, I did not instruct, evaluate, or provide performance feedback to those applicants who were administered these licensing examinations, except as specifically noted below and authorized by the NRC.

| PRINTED NAME  | JOB TITLE / RESPONSIBILITY    | SIGNATURE (1)        | DATE    | SIGNATURE (2) | DATE NOTE |
|---------------|-------------------------------|----------------------|---------|---------------|-----------|
| Jerry Koske   | Training Consultant           | <i>Jerry E Koske</i> | 1/10/05 |               |           |
| DAVID WEAVERS | SUPERVISOR - OPS & TECH TRAIN | <i>David Weavers</i> | 3/28/05 |               |           |
|               |                               |                      |         |               |           |
|               |                               |                      |         |               |           |
|               |                               |                      |         |               |           |
|               |                               |                      |         |               |           |
|               |                               |                      |         |               |           |
|               |                               |                      |         |               |           |
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|               |                               |                      |         |               |           |
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|               |                               |                      |         |               |           |
|               |                               |                      |         |               |           |
|               |                               |                      |         |               |           |
|               |                               |                      |         |               |           |
|               |                               |                      |         |               |           |

NOTES:



| Facility: <u>Fort Calhoun</u>  |  | Date of Examination: <u>7/11/05</u> |                        |    |
|--|--|-------------------------------------|------------------------|----|
| Item   | Task Description   | Initials                            |                        |    |
|  |  | a                                   | b*                     | c# |
| 1.<br>W<br>R<br>I<br>T<br>T<br>E<br>N  | a. Verify that the outline(s) fit(s) the appropriate model, in accordance with ES-401.   | EK                                  | AW                     |    |
|  | b. Assess whether the outline was systematically and randomly prepared in accordance with Section D.1 of ES-401 and whether all K/A categories are appropriately sampled.  | EK                                  | AW                     |    |
|  | c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics.  | EK                                  | AW                     |    |
|  | d. Assess whether the justifications for deselected or rejected K/A statements are appropriate.  | EK                                  | AW                     |    |
| 2.<br>S<br>I<br>M<br>U<br>L<br>A<br>T<br>O<br>R  | a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, technical specifications, and major transients.  | EK                                  | AW                     |    |
|  | b. Assess whether there are enough scenario sets (and spares) to test the projected number and mix of applicants in accordance with the expected crew composition and rotation schedule without compromising exam integrity, and ensure that each applicant can be tested using at least one new or significantly modified scenario, that no scenarios are duplicated from the applicants' audit test(s), and that scenarios will not be repeated on subsequent days.  | EK                                  | AW                     |    |
|  | c. To the extent possible, assess whether the outline(s) conform(s) with the qualitative and quantitative criteria specified on Form ES-301-4 and described in Appendix D.   | EK                                  | AW                     |    |
| 3.<br>W<br>/<br>T  | a. Verify that the systems walk-through outline meets the criteria specified on Form ES-301-2:<br>(1) the outline(s) contain(s) the required number of control room and in-plant tasks distributed among the safety functions as specified on the form<br>(2) task repetition from the last two NRC examinations is within the limits specified on the form<br>(3) no tasks are duplicated from the applicants' audit test(s)<br>(4) the number of new or modified tasks meets or exceeds the minimums specified on the form<br>(5) the number of alternate path, low-power, emergency, and RCA tasks meet the criteria on the form. | EK                                  | AW                     |    |
|  | b. Verify that the administrative outline meets the criteria specified on Form ES-301-1:<br>(1) the tasks are distributed among the topics as specified on the form<br>(2) at least one task is new or significantly modified<br>(3) no more than one task is repeated from the last two NRC licensing examinations  | EK                                  | AW                     |    |
|  | c. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on subsequent days.   | EK                                  | AW                     |    |
| 4.<br>G<br>E<br>N<br>E<br>R<br>A<br>L  | a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam sections.   | EK                                  | AW                     |    |
|  | b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate.   | EK                                  | AW                     |    |
|  | c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5.   | EK                                  | AW                     |    |
|  | d. Check for duplication and overlap among exam sections.  | EK                                  | AW                     |    |
|  | e. Check the entire exam for balance of coverage.  | EK                                  | AW                     |    |
|  | f. Assess whether the exam fits the appropriate job level (RO or SRO).   | EK                                  | AW                     |    |
| a. Author  | <u>Jerry E. Hastic</u> Printed Name / <u>[Signature]</u> Signature   |                                     | Date<br><u>3/28/05</u> |    |
| b. Facility Reviewer (*)   | <u>David E. Weaver</u> / <u>[Signature]</u>  |                                     | <u>3/28/05</u>         |    |
| c. NRC Chief Examiner (#)  | _____  |                                     | _____                  |    |
| d. NRC Supervisor  | _____  |                                     | _____                  |    |
| Note: # Independent NRC reviewer initial items in Column "c"; chief examiner concurrence required. |  |                                     |                        |    |

| <b>WHAT CHANGED?</b>   | <b>CHANGE</b>   | <b>Reason for Change</b>   |
|------------------------|---|--|
| SRO form ES-401-4      | Removed K/A 062000 A2.09 from rejected K/A list.                                | Discussion with Lead Examiner                                    |
| SRO form ES-401-2      | Replaced K/A 007000 A2.05 with 062000 A2.09 (Tier 2/Group 1)                    | Added previously rejected K/A back into exam (see above)         |
| RO ES-301-2            | Replaced Transfer Waste Gas JPM   | Lead Examiner Request  |
|                        | Modified JPM-0042 to an alternate path and renamed it                           | Too simple as written  |
|                        | Changed JPM-0613A from "M" to "D"   | correction   |
|                        | Changed JPM-0627 to "A"   | correction   |
| SRO-I ES-301-2         | Replaced Transfer Waste Gas JPM   | Lead Examiner Request  |
|                        | Replaced JPM-0778 with JPM-0042   | To prevent overlap with Administrative JPM                       |
|                        | Modified JPM-0042 to an alternate path and renamed it                           | Too simple as written  |
|                        | Changed JPM-0613A from "M" to "D"   | correction   |
|                        | Changed JPM-0627 to "A"   | correction   |
| SRO-U ES-301-2         | Replaced Transfer Waste Gas JPM   | Lead Examiner Request  |
|                        | Changed JPM-0613A from "M" to "D"   | correction   |
| SRO Form ES-301-1      | Changed review SDM JPM from SDM with inoperable CEA to SDM with boron depletion | Review SDM with inoperable CEA was used on last SRO exam         |
| Form ES-D-1 scenario 1 | Changed event 2 from S/G pressure transmitter to S/G level.                     | Automatic control system handles failure without operator action |

|                                |   |  |
|--------------------------------|---|--|
| Form ES-D-1 scenario 2         | Changed event 2 from S/G flow transmitter to S/G level.     | Automatic control system handles failure without operator action |
| Form ES-D-1 scenario 4 (spare) | Changed event 2 from S/G pressure transmitter to S/G level. | Automatic control system handles failure without operator action |
|                                |   |  |
|                                |   |  |
|                                |   |  |
|                                |   |  |

| Tier/Group | Randomly Selected K/A | Description   | Reason for Rejection                                      |
|------------|-----------------------|---|---|
| 1/1        | 000008 AA2.05         | Ability to determine and interpret the following as they apply to the Pressurizer Vapor Space Accident:PORV isolation (block) valve switches and indicators                                   | not SRO level K/A   |
| 1/1        | 000017 2.4.30         | Knowledge of which events related to system operations/status should be reported to outside agencies.   | RCP Malfunction would not be reported to outside agencies |
| 1/1        | 000017 AA2.07         | Ability to determine and interpret the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow):Calculation of expected values of flow in the loop with RCP secured | Operators do not calculate flow in this situation         |
| 1/1        | 000022 2.4.30         | Knowledge of which events related to system operations/status should be reported to outside agencies.   | Event would not be reported                               |

| Tier/Group | Randomly Selected K/A | Description   | Reason for Rejection                  |
|------------|-----------------------|---|---------------------------------------|
| 1/1        | 000038 EA2.05         | Ability to determine or interpret the following as they apply to a SGTR:Causes and consequences of shrink and swell in S/Gs   | Difficult to write SRO level question |
| 1/1        | 000056 AA2.29         | Ability to determine and interpret the following as they apply to the Loss of Offsite Power:Service water booster pump ammeter and flowmeter  | No service water booster pump at FCS  |
| 1/1        | 000056 AA2.28         | Ability to determine and interpret the following as they apply to the Loss of Offsite Power:Auxiliary building gas treatment indicator  | No AB gas treatment indicator at FCS  |
| 1/1        | 000062 AA2.06         | Ability to determine and interpret the following as they apply to the Loss of Nuclear Service Water:The length of time after the loss of SWS flow to a component before that component may be damaged | No specified time limits at FCS       |

| Tier/Group | Randomly Selected K/A | Description   | Reason for Rejection                                    |
|------------|-----------------------|---|---|
| 1/2        | 000003 2.1.33         | Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.   | Will be evaluated in operating exam                     |
| 1/2        | 000003 AA2.02         | Ability to determine and interpret the following as they apply to the Dropped Control Rod:Signal inputs to rod control system   | Rod Control is manual at FCS                            |
| 1/2        | 000005 AA2.04         | Ability to determine and interpret the following as they apply to the Inoperable / Stuck Control Rod:Interpretation of computer in-core TC map for dropped rod location | Not used by operators to determine dropped rod location |
| 1/2        | 000028 2.2.25         | Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.  | No Tech Spec on pressurizer level                       |

| Tier/Group | Randomly Selected K/A | Description   | Reason for Rejection                                       |
|------------|-----------------------|---|--|
| 1/2        | 000033 AA2.12         | Ability to determine and interpret the following as they apply to the Loss of Intermediate Range Nuclear Instrumentation:Maximum allowable channel disagreement | No maximum allowable for wide range NI's, not used for RPS |
| 1/2        | 000037 AA2.13         | Ability to determine and interpret the following as they apply to the Steam Generator Tube Leak:Which S/G is leaking  | Will be evaluated in operating exam                        |
| 1/2        | 000037 AA2.02         | Ability to determine and interpret the following as they apply to the Steam Generator Tube Leak:Agreement/disagreement among redundant radiation monitors       | Will be evaluated during simulator scenario                |
| 1/2        | CE-A13 2.4.49         | Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.                            | RO level knowledge, Difficult to write SRO level question  |

| Tier/Group | Randomly Selected K/A | Description   | Reason for Rejection                           |
|------------|-----------------------|---|--|
| 2/1        | 039000 2.4.30         | Knowledge of which events related to system operations/status should be reported to outside agencies.   | Would not be reported to outside agencies      |
| 2/2        | 001000 A2.20          | Ability to (a) predict the impacts of the following malfunction or operations on the CRDS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:Isolation of left coil on affected rod to prevent coil burnout | Does not apply to FCS CRD system               |
| 2/2        | 056000 2.4.49         | Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.  | Not an SRO Task                                |
| 2/2        | 056000 A2.12          | Ability to (a) predict the impacts of the following malfunctions or operations on the Condensate System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:Opening of the heater string bypass valve       | Low SRO importance, no plant specific priority |



| Tier/Group | Randomly Selected K/A | Description  | Reason for Rejection                |
|------------|-----------------------|--|-------------------------------------|
| 3/4        | 000000 2.2.22         | Knowledge of limiting conditions for operations and safety limits.         | Already used as system generic      |
| 3/4        | 000000 2.3.06         | Knowledge of the requirements for reviewing and approving release permits. | Will be evaluated in operating exam |
| 3/4        | 000000 2.2.33         | Knowledge of control rod programming.                                      | Not an RO or SRO task at FCS        |

**Facility:** Fort Calhoun

Printed: 05/30/2005

Date Of Exam: 07/11/2005

| Tier   | Group          | RO K/A Category Points: |    |    |    |    |    |    |    |    |    |    | SRO-Only Points |   |   |    |    |    |
|--|----------------|-------------------------|----|----|----|----|----|----|----|----|----|----|-----------------|---|---|----|----|----|
|  |                | K1                      | K2 | K3 | K4 | K5 | K6 | A1 | A2 | A3 | A4 | G* | Total           | K | A | A2 | G* |    |
| 1.<br>Emergency &<br>Abnormal<br>Plant<br>Evolutions | 1              | 0                       | 0  | 0  |    |    |    | 0  | 0  |    |    | 0  | 0               | 0 | 0 | 3  | 3  | 6  |
|  | 2              | 0                       | 0  | 0  |    |    |    | 0  | 0  |    |    | 0  | 0               | 0 | 0 | 3  | 1  | 4  |
|  | Tier<br>Totals | 0                       | 0  | 0  |    |    |    | 0  | 0  |    |    | 0  | 0               | 0 | 0 | 6  | 4  | 10 |
| 2.<br>Plant<br>Systems                               | 1              | 0                       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0               | 0 | 0 | 2  | 3  | 5  |
|  | 2              | 0                       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0               | 1 | 0 | 1  | 1  | 3  |
|  | Tier<br>Totals | 0                       | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0               | 1 | 0 | 3  | 4  | 8  |
| 3. Generic Knowledge And<br>Abilities Categories     |                |                         |    | 1  |    | 2  |    | 3  |    | 4  |    | 0  |                 | 1 | 2 | 3  | 4  | 7  |
|  |                |                         |    | 0  |    | 0  |    | 0  |    | 0  |    |    |                 | 2 | 2 | 1  | 2  |    |

**Note:**

1. Ensure that at least two topics from every K/A category are sampled within each tier of the RO outline (i.e., the "Tier Totals" in each K/A category shall not be less than two). Refer to Section D.1.c for additional guidance regarding the SRO sampling.
2. The point total for each group and tier in the proposed outline must match that specified in the table. The final point total for each group and tier may deviate by ±1 from that specified in the table based on NRC revisions. The final RO exam must total 75 points and the SRO-only exam must total 25 points.
3. Select topics from many systems and evolutions; avoid selecting more than two K/A topics from a given system unless they relate to plant-specific priorities.
4. Systems/evolutions within each group are identified on the associated outline.
5. The shaded areas are not applicable to the category /tier.
- 6.\* The generic (G) K/As in Tiers 1 and 2 shall be selected from Section 2 of the K/A Catalog, but the topics must be relevant to the applicable evolution or system. The SRO K/As must also be linked to 10 CFR 55.43 or an SRO-level learning objective.
7. On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance ratings (IR) for the applicable license level, and the point totals for each system and category. Enter the group and tier totals for each category in the columns labeled "K" and "A". Use duplicate pages for RO and SRO-only exams.
8. For Tier 3, enter the K/A numbers, descriptions, importance ratings, and point totals on Form ES-401-3.
9. Refer to ES-401, Attachment 2, for guidance regarding the elimination of inappropriate K/A statements.

## PWR SRO Examination Outline

Printed: 05/30/2005

Facility: Fort Calhoun

ES - 401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 1

Form ES-401-2

| E/APE # / Name / Safety Function                   | K1       | K2       | K3       | A1       | A2       | G        | KA Topic  | Imp.     | Points |
|--|----------|----------|----------|----------|----------|----------|---|----------|--------|
| 000009 Small Break LOCA / 3                        |          |          |          |          | X        |          | EA2.25 - Reactor trip setpoints   | 4.1      | 1      |
| 000015 RCP Malfunctions / 4                        |          |          |          |          |          | X        | 2.1.32 - Ability to explain and apply all system limits and precautions.  | 3.8      | 1      |
| 000025 Loss of RHR System / 4                      |          |          |          |          | X        |          | AA2.07 - Pump cavitation  | 3.7      | 1      |
| 000026 Loss of Component Cooling Water / 8         |          |          |          |          | X        |          | AA2.02 - The cause of possible CCW loss   | 3.6      | 1      |
| 000038 Steam Gen. Tube Rupture / 3                 |          |          |          |          |          | X        | 2.4.30 - Knowledge of which events related to system operations/status should be reported to outside agencies.    | 3.6      | 1      |
| CE/E02 Reactor Trip - Stabilization - Recovery / 1 |          |          |          |          |          | X        | 2.2.25 - Knowledge of bases in technical specifications for limiting conditions for operations and safety limits. | 3.7      | 1      |
| <b>K/A Category Totals:</b>                        | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>3</b> | <b>3</b> | <b>Group Point Total:</b>   | <b>6</b> |        |

## PWR SRO Examination Outline

Printed: 05/30/2005

Facility: Fort Calhoun

ES - 401

Emergency and Abnormal Plant Evolutions - Tier 1 / Group 2

Form ES-401-2

| <b>E/APE # / Name / Safety Function</b>  | <b>K1</b> | <b>K2</b> | <b>K3</b> | <b>A1</b> | <b>A2</b> | <b>G</b> | <b>KA Topic</b>  | <b>Imp.</b> | <b>Points</b> |
|--|-----------|-----------|-----------|-----------|-----------|----------|--|-------------|---------------|
| 000068 Control Room Evac. / 8            |           |           |           |           | X         |          | AA2.10 - Source range count rate   | 4.4*        | 1             |
| 000074 Inad. Core Cooling / 4            |           |           |           |           | X         |          | EA2.02 - Availability of main or auxiliary feedwater   | 4.6         | 1             |
| 000076 High Reactor Coolant Activity / 9 |           |           |           |           |           | X        | 2.1.14 - Knowledge of system status criteria which require the notification of plant personnel.              | 3.3         | 1             |
| CE/E09 Functional Recovery               |           |           |           |           | X         |          | EA2.1 - Facility conditions and selection of appropriate procedures during abnormal and emergency operations | 4.4         | 1             |
| <b>K/A Category Totals:</b>              | <b>0</b>  | <b>0</b>  | <b>0</b>  | <b>0</b>  | <b>3</b>  | <b>1</b> | <b>Group Point Total:</b>  | <b>4</b>    |               |

**PWR SRO Examination Outline**

Printed: 05/30/2005

Facility: Fort Calhoun

**ES - 401**

**Plant Systems - Tier 2 / Group 1**

**Form ES-401-2**

| Sys/Evol # / Name               | K1       | K2       | K3       | K4       | K5       | K6       | A1       | A2       | A3       | A4       | G        | KA Topic   | Imp.     | Points |
|---------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|----------|--------|
| 004 Chemical and Volume Control |          |          |          |          |          |          |          | X        |          |          |          | A2.11 - Loss of IAS  | 4.2      | 1      |
| 006 Emergency Core Cooling      |          |          |          |          |          |          |          |          |          |          | X        | 2.1.33 - Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications. | 4.0      | 1      |
| 062 AC Electrical Distribution  |          |          |          |          |          |          |          | X        |          |          |          | A2.09 - Consequences of exceeding current limitations  | 3.0*     | 1      |
| 063 DC Electrical Distribution  |          |          |          |          |          |          |          |          |          |          | X        | 2.2.22 - Knowledge of limiting conditions for operations and safety limits.  | 4.1      | 1      |
| 103 Containment                 |          |          |          |          |          |          |          |          |          |          | X        | 2.1.32 - Ability to explain and apply all system limits and precautions.   | 3.8      | 1      |
| <b>K/A Category Totals:</b>     | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>2</b> | <b>0</b> | <b>0</b> | <b>3</b> | <b>Group Point Total:</b>  | <b>5</b> |        |

**PWR SRO Examination Outline**

Printed: 05/30/2005

**Facility:** Fort Calhoun

**ES - 401**

**Plant Systems - Tier 2 / Group 2**

**Form ES-401-2**

| <b>Sys/Evol # / Name</b>    | <b>K1</b> | <b>K2</b> | <b>K3</b> | <b>K4</b> | <b>K5</b> | <b>K6</b> | <b>A1</b> | <b>A2</b> | <b>A3</b> | <b>A4</b> | <b>G</b> | <b>KA Topic</b>   | <b>Imp.</b> | <b>Points</b> |
|-----------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|---|-------------|---------------|
| 001 Control Rod Drive       |           |           |           |           |           |           |           | X         |           |           |          | A2.13 - ATWS  | 4.6         | 1             |
| 002 Reactor Coolant         |           |           |           |           |           |           |           |           |           |           | X        | 2.2.22 - Knowledge of limiting conditions for operations and safety limits. | 4.1         | 1             |
| 034 Fuel Handling Equipment |           |           |           | X         |           |           |           |           |           |           |          | K4.01 - Fuel protection from binding and dropping                           | 3.4         | 1             |
| <b>K/A Category Totals:</b> | <b>0</b>  | <b>0</b>  | <b>0</b>  | <b>1</b>  | <b>0</b>  | <b>0</b>  | <b>0</b>  | <b>1</b>  | <b>0</b>  | <b>0</b>  | <b>1</b> | <b>Group Point Total:</b>   | <b>3</b>    |               |

## Generic Knowledge and Abilities Outline (Tier 3)

### PWR SRO Examination Outline

Printed: 05/30/2005

Facility: Fort Calhoun

**Form ES-401-3**

| <u>Generic Category</u>          | <u>KA</u>              | <u>KA Topic</u>   | <u>Imp.</u> | <u>Points</u> |
|----------------------------------|------------------------|---|-------------|---------------|
| <b>Conduct of Operations</b>     | 2.1.4                  | Knowledge of shift staffing requirements.   | 3.4         | 1             |
|                                  | 2.1.34                 | Ability to maintain primary and secondary plant chemistry within allowable limits.                          | 2.9         | 1             |
|                                  | <b>Category Total:</b> |   |             | <b>2</b>      |
| <b>Equipment Control</b>         | 2.2.5                  | Knowledge of the process for making changes in the facility as described in the safety analysis report.     | 2.7         | 1             |
|                                  | 2.2.19                 | Knowledge of maintenance work order requirements.   | 3.1         | 1             |
|                                  | <b>Category Total:</b> |   |             | <b>2</b>      |
| <b>Radiation Control</b>         | 2.3.10                 | Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure. | 3.3         | 1             |
|                                  | <b>Category Total:</b> |   |             | <b>1</b>      |
| <b>Emergency Procedures/Plan</b> | 2.4.29                 | Knowledge of the emergency plan.  | 4.0         | 1             |
|                                  | 2.4.45                 | Ability to prioritize and interpret the significance of each annunciator or alarm.                          | 3.6         | 1             |
|                                  | <b>Category Total:</b> |   |             | <b>2</b>      |
| <b>Generic Total:</b>            |                        |   |             | <b>7</b>      |

| Facility: <u>Fort Calhoun</u>  |  | Date of Examination: <u>07/11/05</u> |
|--|--|--------------------------------------|
| Exam Level : RO  |  | Operating Test No.: _____            |
| Control Room Systems@ (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)  |  |                                      |
| System / JPM Title   | Type Code*                                     | Safety Function                      |
| a. 006 / JPM-0329 Fill Safety Injection Tank<br>K/A 006000 A3.01 (RO 4.0 / SRO 3.9)  | S , D  | 2                                    |
| b. 022 / JPM-0718 Place Containment Cooling Unit in Service<br>K/A 022000 A4.01 (RO 3.6 / SRO 3.6)   | S , D  | 5                                    |
| c. 012 / JPM-0778 Adjust T-Cold Calibration<br>K/A 012000 A1.01 (RO 2.9 / SRO 3.4)   | S , D  | 7                                    |
| d. 086 JPM-0726 Restore CR Ventilation following smoke alarm<br>K/A 000067 AA1.05 (RO 3.0 / SRO 3.1)   | S, D, A  | 8                                    |
| e. 062 / JPM-0042 Transfer Clutch Power Supply/x-tie inst busses<br>K/A 062000 A2.10 (RO 3.0 / SRO 3.3)  | S, M, A  | 6                                    |
| f. 003 / JPM-0613A Shutdown a Reactor Coolant Pump<br>K/A 003000 A4.06 (RO 2.9 / SRO 2.9)  | S, D, A, L                                     | 4P                                   |
| g. 061 / JPM-0387AFW Functional Test of Circuits and Components<br>K/A 061000 K4.02 (RO 4.5 / SRO 4.6)   | S, N, L  | 4S                                   |
| h. 003 / JPM-0627 Reduce RCS Pressure using Auxiliary Spray<br>K/A 010000 A4.01 (RO 3.7 / SRO 3.5)   | S, N, A  | 3                                    |
| In-Plant Systems@ (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)  |  |                                      |
| i. 078 / JPM-0225 Air Compressor Backup Cooling<br>K/A 078000 K1.04 (RO 2.6 / SRO 2.9)   | M, E   | 8                                    |
| j. 064 / JPM-0356 Local Emergency Start of a Diesel Generator<br>K/A 064000 A4.06 (RO 3.9 / SRO 3.9)   | N, A, E  | 6                                    |
| k. 028 / JPM-0719M Startup Containment Hydrogen Purge and Makeup<br>K/A 068000 A3.02 (RO 3.6 / SRO 3.6)  | M, R, E  | 5                                    |
| @ All control room (and in-plant) systems must be different and 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   | $\leq 9 / \leq 8 / \leq 4$                     |                                      |
| (E)mergency or abnormal in-plant   | $\geq 1 / \geq 1 / \geq 1$                     |                                      |
| (L)ow-Power  | $\geq 1 / \geq 1 / \geq 1$                     |                                      |
| (N)ew or (M)odified from bank including 1(A)   | $\geq 2 / \geq 2 / \geq 1$                     |                                      |
| (P)revious 2 exams   | $\leq 3 / \leq 3 / \leq 2$ (randomly selected) |                                      |
| (R)CA  | $\geq 1 / \geq 1 / \geq 1$                     |                                      |
| (S)imulator  |  |                                      |



| Facility: <u>Fort Calhoun</u>  |  | Date of Examination: <u>07/11/05</u> |
|--|--|--------------------------------------|
| Exam Level : ISRO  |  | Operating Test No.: _____            |
| Control Room Systems@ (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)  |  |                                      |
| System / JPM Title   | Type Code*                                     | Safety Function                      |
| a. 006 / JPM-0329 Fill Safety Injection Tank<br>K/A 006000 A3.01 (RO 4.0 / SRO 3.9)  | S , D  | 2                                    |
| b. 022 / JPM-0718 Place Containment Cooling Unit in Service<br>K/A 022000 A4.01 (RO 3.6 / SRO 3.6)   | S , D  | 5                                    |
| c.   |  |                                      |
| d. 086 JPM-0726 Restore CR Ventilation following smoke alarm<br>K/A 000067 AA1.05 (RO 3.0 / SRO 3.1)   | S, D, A  | 8                                    |
| e. 062 / JPM-0042 Transfer Clutch Power Supply/x-tie inst busses<br>K/A 062000 A2.10 (RO 3.0 / SRO 3.3)  | S, M, A  | 6                                    |
| f. 003 / JPM-0613A Shutdown a Reactor Coolant Pump<br>K/A 003000 A4.06 (RO 2.9 / SRO 2.9)  | S, D, A, L                                     | 4P                                   |
| g. 061 / JPM-0387AFW Functional Test of Circuits and Components<br>K/A 061000 K4.02 (RO 4.5 / SRO 4.6)   | S, N, L  | 4S                                   |
| h. 003 / JPM-0627 Reduce RCS Pressure using Auxiliary Spray<br>K/A 010000 A4.01 (RO 3.7 / SRO 3.5)   | S, N, A  | 3                                    |
| In-Plant Systems@ (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)  |  |                                      |
| i. 078 / JPM-0225 Air Compressor Backup Cooling<br>K/A 078000 K1.04 (RO 2.6 / SRO 2.9)   | M, E   | 8                                    |
| j. 064 / JPM-0356 Local Emergency Start of a Diesel Generator<br>K/A 064000 A4.06 (RO 3.9 / SRO 3.9)   | N, A, E  | 6                                    |
| k. 028 / JPM-0719M Startup Containment Hydrogen Purge and Makeup<br>K/A 068000 A3.02 (RO 3.6 / SRO 3.6)  | M, R, E  | 5                                    |
| @ All control room (and in-plant) systems must be different and 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   | $\leq 9 / \leq 8 / \leq 4$                     |                                      |
| (E)mergency or abnormal in-plant   | $\geq 1 / \geq 1 / \geq 1$                     |                                      |
| (L)ow-Power  | $\geq 1 / \geq 1 / \geq 1$                     |                                      |
| (N)ew or (M)odified from bank including 1(A)   | $\geq 2 / \geq 2 / \geq 1$                     |                                      |
| (P)revious 2 exams   | $\leq 3 / \leq 3 / \leq 2$ (randomly selected) |                                      |
| (R)CA  | $\geq 1 / \geq 1 / \geq 1$                     |                                      |
| (S)imulator  |  |                                      |

|  |  |  |                 |
|--|--|--|-----------------|
| Facility: <u>Fort Calhoun</u>  |  | Date of Examination: <u>07/11/05</u>           |                 |
| Exam Level : <u>USRO</u>   |  | Operating Test No.: _____                      |                 |
| Control Room Systems@ (8 for RO; 7 for SRO-I; 2 or 3 for SRO-U)  |  |  |                 |
| System / JPM Title   |  | Type Code*                                     | Safety Function |
| a.   |  |  |                 |
| b.   |  |  |                 |
| c.   |  |  |                 |
| d.   |  |  |                 |
| e.   |  |  |                 |
| f. 003 / JPM-0613A Shutdown a Reactor Coolant Pump<br>K/A 003000 A4.06 (RO 2.9 / SRO 2.9)  |  | S, D, A, L                                     | 4P              |
| g. 061 / JPM-0387AFW Functional Test of Circuits and Components<br>K/A 061000 K4.02 (RO 4.5 / SRO 4.6)   |  | S, N, L  | 4S              |
| h.   |  |  |                 |
| In-Plant Systems@ (3 for RO; 3 for SRO-I; 3 or 2 for SRO-U)  |  |  |                 |
| i. 078 / JPM-0225 Air Compressor Backup Cooling<br>K/A 078000 K1.04 (RO 2.6 / SRO 2.9)   |  | M, E   | 8               |
| j. 064 / JPM-0356 Local Emergency Start of a Diesel Generator<br>K/A 064000 A4.06 (RO 3.9 / SRO 3.9)   |  | N, A, E  | 6               |
| k. 028 / JPM-0719M Startup Containment Hydrogen Purge and Makeup<br>K/A 068000 A3.02 (RO 3.6 / SRO 3.6)  |  | M, R, E  | 5               |
| @ All control room (and in-plant) systems must be different and 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   |  | $\leq 9 / \leq 8 / \leq 4$                     |                 |
| (E)mergency or abnormal in-plant   |  | $\geq 1 / \geq 1 / \geq 1$                     |                 |
| (L)ow-Power  |  | $\geq 1 / \geq 1 / \geq 1$                     |                 |
| (N)ew or (M)odified from bank including 1(A)   |  | $\geq 2 / \geq 2 / \geq 1$                     |                 |
| (P)revious 2 exams   |  | $\leq 3 / \leq 3 / \leq 2$ (randomly selected) |                 |
| (R)CA  |  | $\geq 1 / \geq 1 / \geq 1$                     |                 |
| (S)imulator  |  |  |                 |

Facility: Fort CalhounDate of Examination: 07/11/05

Examination Level : SRO

Operating Test Number: \_\_\_\_\_

| Administrative Topic<br>(see Note) | Type<br>Code* | Describe activity to be performed  |
|------------------------------------|---------------|--|
| Conduct of Operations              | M             | Administrative JPM – Review shutdown margin calculation with boron depletion<br>K/A 2.1.7 (SRO 3.7)                          |
| Conduct of Operations              | D             | Administrative JPM – Determine equipment operability requirements during mode transition<br>K/A 2.1.22 (SRO 3.3)             |
| Equipment Control                  | M             | Administrative JPM – Review required shift surveillance<br>OP-ST-SHIFT-0001<br>K/A 2.2.12 (SRO 3.4)                          |
| Radiation Control                  | N             | Administrative JPM – Authorize Waste Gas Decay Tank Release<br>K/A 2.3.6 (SRO 3.1)   |
| Emergency Plan                     | M             | Administrative JPM – Classify Event and make Protective Action Recommendations<br>K/A 2.4.41 (SRO 4.1), K/A 2.4.44 (SRO 4.0) |

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  
 (D)irect from bank ( $\leq 3$  for ROs;  $\leq 4$  for SROs & RO retakes)  
 (N)ew or (M)odified from bank ( $\geq 1$ )  
 (P)revious 2 exams ( $\leq 1$ ; randomly selected)  
 (S)imulator

| Facility: Fort Calhoun   |                                  | Scenario No: 2005 - 1 |   | Op-Test No. _____ |  |
|--|----------------------------------|-----------------------|---|-------------------|--|
| Examiners: _____<br>_____  |                                  |                       | Operators: _____<br>_____   |                   |  |
| Initial Conditions: 100% Power IC#1<br>{ Preset malfunctions: COP RCAF2U1 0%, COP RCAF2U2 0%, MFP EHC02, MFP ESF02A OFF, MFP ESF02B OFF} |                                  |                       |   |                   |  |
| Turnover: CCW-Pump, AC-3A and Diesel Driven AFW pump FW-54 are tagged out of service<br>Maintain Power Operations                        |                                  |                       |   |                   |  |
| Event No.  | Malf No.                         | Event Type*           | Event Description   |                   |  |
| 1<br>(3:00)  | COP T:F212<br>160                | I - ATC               | Letdown flow transmitter fails high – letdown isolates                |                   |  |
| 2<br>(10:00)   | COP<br>T:L903X 0%<br>60 sec ramp | I - BOP               | S/G “A” level transmitter fails low – manual FW flow control required |                   |  |
| 3<br>(15:00)   | COP<br>NCAPCA1C<br>TRIP          | C - BOP               | IA Compressor trips, standby does not load                            |                   |  |
| 4<br>(20:00)   | MFP CRD06<br>R1G1<br>Deenergized | C – ATC               | Dropped CEA – T/S Entry   |                   |  |
| 5  | N/A                              | R – ATC<br>N - BOP    | TS Required power reduction to 70%                                    |                   |  |
| 6<br>(35:00)   | MFP<br>EDS04B                    | C - ATC               | Instrument Bus Fails – T/S Entry                                      |                   |  |
| 7<br>(45:00)   | MSS01A<br>20%<br>2 min ramp      | M - ALL               | Main steam line break inside containment                              |                   |  |
| 8  | Preset                           | C - BOP               | Turbine fails to trip   |                   |  |
| 9  | Preset                           | I – ATC<br>or BOP     | CPHS Fails to Actuate   |                   |  |
|  |                                  |                       |   |                   |  |
|  |                                  |                       |   |                   |  |
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|  |                                  |                       |   |                   |  |
| * (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor   |                                  |                       |   |                   |  |

| Facility: Fort Calhoun   |                          | Scenario No: 2005 - 2 |   | Op-Test No. _____ |  |
|--|--------------------------|-----------------------|---|-------------------|--|
| Examiners: _____<br>_____  |                          |                       | Operators: _____<br>_____   |                   |  |
| Initial Conditions: 100% Power (IC#1)<br>(PRESET MFP CRD05I untrip, MFP CRD05H untrip, COP T:R057 69, Start CH-1B, Stop CH-1C) |                          |                       |   |                   |  |
| Turnover: CCW-Pump, AC-3A and Diesel Driven AFW pump FW-54 are tagged out of service<br>Maintain Power Operations              |                          |                       |   |                   |  |
| Event No.  | Malf No.                 | Event Type*           | Event Description   |                   |  |
| 1<br>(3:00)  | MFP<br>NIS04C            | I - ATC               | Power Range NI Channel "C" Fails – T/S entry  |                   |  |
| 2<br>(10:00)   | COP<br>T:L906X<br>55%    | I - BOP               | S/G "B" level transmitter fails to 55%  |                   |  |
| 3<br>(16:00)   | COP<br>NBWPAC9<br>A trip | C - BOP               | Bearing Water Pump AC-9A Trips  |                   |  |
| 4<br>(20:00)   | T:T122H2<br>665°F        | I - ATC               | RCS T-hot fails – T/S entry   |                   |  |
| 5<br>(30:00)   | MFP<br>CVC16B            | C - ATC               | Charging Pump CH-1B degraded performance  |                   |  |
| 6<br>(40:00)   | MFP<br>SGN01A<br>25%     | M -<br>ALL            | Steam Generator Tube Rupture  |                   |  |
| 7  | Preset                   | R - ATC               | 2 CEAs fail to insert – Emergency Boration Required   |                   |  |
| 8  | Preset                   | I - BOP               | RM-057 (Condenser offgas radiation monitor) fails "as is"<br>(Aux Steam Isolation valve, RC-978, does not get close signal) |                   |  |
|  |                          |                       |   |                   |  |
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|  |                          |                       |   |                   |  |
| * (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor   |                          |                       |   |                   |  |

| Facility: Fort Calhoun   | Scenario No: 2005 – 4 (spare)         | Op-Test No. _____ |  |
|--|---------------------------------------|-------------------|--|
| Examiners: _____<br>_____<br>_____   | Operators: _____<br>_____<br>_____    |                   |  |
| Initial Conditions: 49% Power<br><br>{Preset MSS02F 100% E1 30 sec delay} { Place 1A1 and 1A2 on 22 KV, S/D CH-1A}                                   |                                       |                   |  |
| Turnover: Heater Drain pumps FW- 5A and FW-5C are tagged out of service. Power held at 50% pending repair of at least one of the heater drain pumps. |                                       |                   |  |
| Event No.  | Malf No.                              | Event Type*       | Event Description                              |
| 1<br>(3:00)  | COP<br>JLB218LL<br>Fail_set           | I - ATC           | VCT Level Transmitter Fails Low                |
| 2<br>(8:00)  | COP<br>T:L903X<br>100% 45 sec<br>ramp | I - BOP           | S/G "A" Level transmitter fails high           |
| 3<br>(15:00)   | COP<br>T:F114YA<br>0                  | I - ATC           | RCS Flow transmitter failure – T/S Entry       |
| 4<br>(22:00)   | MFP<br>AFW05A                         | I - BOP           | Inadvertent AFAS actuation – T/S Entry         |
| 5<br>(30:00)   | COP RCAP<br>849A&B<br>0%              | C - ATC           | Instrument air to containment isolates         |
| 6<br>(40:00)   | MFP<br>CND01<br>100% 300<br>sec ramp  | C - BOP           | Loss of condenser vacuum                       |
| 7  | N/A                                   | M - ALL           | Reactor Trip – no steam dump and bypass valves |
| 8  | Preset                                | C - BOP           | S/G safety valve sticks open                   |
|  |                                       |                   |  |
|  |                                       |                   |  |
|  |                                       |                   |  |
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|  |                                       |                   |  |
|  |                                       |                   |  |
| * (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor   |                                       |                   |  |