

# **Draft Submittal**

(Pink Paper)

**DRAFT Written Exam Quality Checklist (ES-401-6)**  
**& Written Exam Sample Plan**

**OCONEE JUNE 2006-301 EXAM**

**05000269, 05000270, AND  
05000287/2006301**

**JUNE 19 - 28, 2006 AND  
JUNE 30, 2006 (WRITTEN)**

ES-401

## Written Examination Quality Checklist

Form ES-401-6

| Facility: <u>OKONEE</u> |  | Date of Exam: <u>JUNE 2006</u> |               | Exam Level: <u>RO/SRO</u> |    |     |
|-------------------------|--|--------------------------------|---------------|---------------------------|----|-----|
| Item Description        |  |                                |               | Initial                   |    |     |
|                         |  |                                |               | a                         | b* | c*  |
| 1.                      | Questions and answers are technically accurate and applicable to the facility.   |                                |               | MB                        |    | ✓   |
| 2.                      | a. NRC K/As are referenced for all questions.<br>b. Facility learning objectives are referenced as available.  |                                |               | MB                        |    | ✓   |
| 3.                      | SRO questions are appropriate in accordance with Section D.2.d of ES-401   |                                |               | MB                        |    | ✓   |
| 4.                      | If more than four RO and two SRO questions are repeated from the last two NRC licensing exams, the facility licensee's sampling process was random and systematic.   |                                |               | MB                        |    | ✓   |
| 5.                      | Question duplication from the license screening/audit exam was controlled as indicated below (check the item that applies) and appears appropriate:<br><input type="checkbox"/> the audit exam was systematically and randomly developed<br><input type="checkbox"/> the audit exam was completed before the license exam was started<br><input checked="" type="checkbox"/> the examinations were developed independently<br><input type="checkbox"/> the licensee certifies that there is no duplication<br><input type="checkbox"/> other (explain) |                                |               | MB                        |    | ✓   |
| 6.                      | Bank use meets limits (no more than 75 percent from the bank, at least 10 percent new, and the rest new or modified); enter the actual RO / SRO-only question distributions(s) at right.   | Bank                           | Modified      | New                       | MB | N/A |
|                         |  | 8/75 / 2/25                    | 10/75 / 3/25  | 57/75 / 20/25             |    | ✓   |
| 7.                      | Between 50 and 60 percent of the questions on the RO exam are written at the comprehension/analysis level; the SRO exam may exceed 60 percent if the randomly selected K/As support the higher cognitive levels; enter the actual RO / SRO question distribution(s) at right.  | Memory                         | C/A           |                           | MB | ✓   |
|                         |  | 30/75 / 11/25                  | 45/75 / 14/25 |                           |    | ✓   |
| 8.                      | References/handouts provided do not give away answers or aid in the elimination of distractors.  |                                |               | MB                        |    | ✓   |
| 9.                      | Question content conforms with specific K/A statements in the previously approved examination outline and is appropriate for the tier to which they are assigned; deviations are justified.  |                                |               | MB                        |    | ✓   |
| 10.                     | Question psychometric quality and format meet the guidelines in ES Appendix B.   |                                |               | MB                        |    | ✓   |
| 11.                     | The exam contains the required number of one-point, multiple choice items; the total is correct and agrees with the value on the cover sheet.  |                                |               | MB                        |    | ✓   |

  

|                            | Printed Name / Signature             | Date               |
|----------------------------|--------------------------------------|--------------------|
| a. Author                  | <u>MARK A. BATES / Mark G. Tatro</u> | <u>08 MAY 2006</u> |
| b. Facility Reviewer (*)   | <u>N/A</u>                           |                    |
| c. NRC Chief Examiner (#)  | <u>RONALD F. Aiello</u>              | <u>05/08/06</u>    |
| d. NRC Regional Supervisor | <u>J. H. Moorman, Jr.</u>            | <u>5.9.06</u>      |

Note: \* The facility reviewer's initials/signature are not applicable for NRC-developed examinations.  
 # Independent NRC reviewer initial items in Column [c]; chief examiner concurrence required.

| Facility: Oconee  |                | Date of June 2006<br>Exam: |        |        |        |        |        |        |        |        |        |    |       |                   |    |       |    |   |
|---|----------------|----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----|-------|-------------------|----|-------|----|---|
| Tier  | Group          | RO K/A Category Points     |        |        |        |        |        |        |        |        |        |    |       | SRO – Only Points |    |       |    |   |
|   |                | K<br>1                     | K<br>2 | K<br>3 | K<br>4 | K<br>5 | K<br>6 | A<br>1 | A<br>2 | A<br>3 | A<br>4 | G* | Total | A2                | G* | Total |    |   |
| 1.<br>Emergency<br>&<br>Abnormal<br>Plant<br>Evolutions   | 1              | 4                          | 2      | 4      | N/A    |        |        | 2      | 3      | N/A    |        |    | 3     | 18                | 3  | 3     | 6  |   |
|   | 2              | 2                          | 2      | 2      |        |        |        | 1      | 1      |        |        |    | 1     | 9                 | 1  | 3     | 4  |   |
|   | Tier<br>Totals | 6                          | 4      | 6      |        |        |        | 3      | 4      |        |        |    | 4     | 27                | 4  | 6     | 10 |   |
| 2.<br>Plant<br>Systems  | 1              | 3                          | 2      | 2      | 2      | 1      | 2      | 3      | 2      | 4      | 3      | 4  | 28    | 2                 | 3  | 5     |    |   |
|   | 2              | 1                          | 1      | 1      | 1      | 1      | 1      | 1      | 1      | 1      | 0      | 1  | 10    | 1                 | 2  | 3     |    |   |
|   | Tier<br>Totals | 4                          | 3      | 3      | 3      | 2      | 3      | 4      | 3      | 5      | 3      | 5  | 38    | 3                 | 5  | 8     |    |   |
| 3. Generic Knowledge and Abilities Categories   |                |                            |        |        | 1      |        | 2      |        | 3      |        | 4      |    |       |                   | 1  | 2     | 3  | 4 |
|   |                |                            |        |        | 3      |        | 2      |        | 3      |        | 2      |    | 10    |                   | 2  | 2     | 1  | 2 |
| <p>Note:</p> <ol style="list-style-type: none"> <li>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).</li> <li>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 <math>\pm 1</math> 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.</li> <li>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; operability-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.</li> <li>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.</li> <li>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, unless the entire exam will be administered only to SRO applicants, in which case the SRO ratings should be used throughout.</li> <li>Select SRO topics for Tiers 1 and 2 from the shaded systems and K/A categories.</li> <li>* 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.</li> <li>On the following pages, enter the K/A numbers, a brief description of each topic, the topics' importance rating (IR) for the applicable license level, and the point totals (#) for each system and category. Enter the group and tier totals for each category in the table above. Use duplicate pages for RO and SRO-only exams.</li> <li>For Tier 3, select topics from Section 2 of the K/A catalog, and enter the K/A numbers, descriptions, importance ratings, and point totals (#) on Form ES-401-3. Limit SRO selections to K/As that are linked to 10 CFR 55.43.</li> </ol> |                |                            |        |        |        |        |        |        |        |        |        |    |       |                   |    |       |    |   |

| E/APE # / Name / Safety Function  | K<br>1 | K<br>2 | K<br>3 | A<br>1 | A<br>2 | G | K/A Topic(s)  | IR             | # |
|---|--------|--------|--------|--------|--------|---|---|----------------|---|
| 000007 (BW/E02&E10; CE/E02) Reactor Trip - Stabilization - Recovery / 1         |        |        |        |        | R<br>S |   | R BW/E02 EA2.1 Ability to determine and interpret the following as they apply to the (Vital System Status Verification): Facility conditions and selection of appropriate procedures during abnormal and emergency operations.<br><br>S BW/E02 EA2.2 Ability to determine and interpret the following as they apply to the (Vital System Status Verification): Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments. | 2.5<br><br>3.8 |   |
| 000008 Pressurizer Vapor Space Accident / 3                                     |        | R      |        |        | S      |   | R 008 AK2.01 Knowledge of the interrelations between the Pressurizer Vapor Space Accident and the following: Valves.<br><br>S 008 AA2.02 Ability to determine and interpret the following as they apply to the Pressurizer Vapor Space Accident: PZR spray valve position indicators and acoustic monitors.   | 2.7<br><br>4.1 |   |
| 000009 Small Break LOCA / 3   |        |        | R      |        |        |   | R 009 EK3.12 Knowledge of the reasons for the following responses as they apply to the small break LOCA: Letdown isolation.   | 3.4            |   |
| 000011 Large Break LOCA / 3   | R      |        |        |        | S      |   | R 011EK1.01 Knowledge of the operational implications of the following concepts as they apply to the Large Break LOCA: Natural circulation and cooling, including reflux boiling.<br><br>S 011EA2.01 Ability to determine or interpret the following as they apply to a Large Break LOCA: Actions to be taken, based on RCS temperature and pressure – saturated and superheated.   | 4.1<br><br>4.7 |   |
| 000015/17 RCP Malfunctions / 4  |        |        |        |        |        | R | R 015/017 G2.1.7 Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.  | 3.7            |   |
| 000022 Loss of Rx Coolant Makeup / 2  | R      |        |        |        |        |   | R 022 AK1.04 Knowledge of the operational implications of the following concepts as they apply to Loss of Reactor Coolant Pump Makeup: Reason for changing from manual to automatic control of charging flow valve controller.  | 2.9            |   |
| 000025 Loss of RHR System / 4   |        | R      |        |        |        |   | R 025 AK2.02 Knowledge of the interrelations between the Loss of Residual Heat Removal System and the following: LPI or Decay Heat Removal / RHR pumps.   | 3.2            |   |
| 000026 Loss of Component Cooling Water / 8                                      |        |        |        |        |        | R | R 026 G2.4.24 Knowledge of loss of cooling water procedures.  | 3.3            |   |
| 000027 Pressurizer Pressure Control System Malfunction / 3                      | R      |        |        |        |        |   | R 027 AK1.02 Knowledge of the operational implications of the following concepts as they apply to Pressurizer Pressure Control Malfunctions: Expansion of liquids as temperature increases.   | 2.8            |   |
| 000029 ATWS / 1   | R      |        |        |        |        |   | R 029 EK1.03 Knowledge of the operational implications of the following concepts as they apply to the ATWS: Effects of boron on reactivity.   | 3.6            |   |
| 000038 Steam Gen. Tube Rupture / 3  |        |        |        |        | R<br>S |   | R 038 EA2.12 Ability to determine or interpret the following as they apply to a SGTR: Status of MSIV activating system.<br><br>S 038 G2.4.48 Ability to interpret control room indications to verify the status and operation of the system, and understand how operator actions and directives affect plant and system conditions.   | 3.9<br><br>3.8 |   |
| 000040 (BW/E05; CE/E05; W/E12) Steam Line Rupture - Excessive Heat Transfer / 4 |        |        |        |        | R      |   | R BW/E05 EA2.2 Ability to determine and interpret the following as they apply to the (Excessive Heat Transfer): Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.  | 3.6            |   |
| 000054 (CE/E06) Loss of Main Feedwater / 4                                      |        |        |        | R      |        |   | R 054 AA1.04 Ability to operate and / or monitor the following as they apply to the Loss of Main Feedwater (MFW): HPI, under total feedwater loss conditions.   | 4.4            |   |
| 000055 Station Blackout / 6   |        |        |        |        |        | R | R 055 G2.1.32 Ability to explain and apply all system limits and precautions.   | 3.4            |   |
| 000056 Loss of Off-site Power / 6   |        |        | R      |        |        |   | R 056 AK3.02 Knowledge of the reasons for the following responses as they apply to the Loss of Offsite Power: Actions contained in EOP for loss of offsite power.   | 4.4            |   |
| 000057 Loss of Vital AC Inst. Bus / 6   |        |        |        |        |        |   | Not selected.   |                |   |

| ES-401<br>Oconee 2006-301  |        | PWR Examination Outline<br>Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO-R / SRO-S) |        |        |        |        |  | Form ES-401-2  |   |
|--|--------|--|--------|--------|--------|--------|--|----------------|---|
| E/APE # / Name / Safety Function   | K<br>1 | K<br>2   | K<br>3 | A<br>1 | A<br>2 | G      | K/A Topic(s)   | IR             | # |
| 000058 Loss of DC Power / 6  |        |  | R      |        |        |        | R 058 AK3.01 Knowledge of the reasons for the following responses as they apply to the loss of DC Power: Use of dc control power by D/Gs.  | 3.4            |   |
| 000062 Loss of Nuclear Svc Water / 4                                     |        |  |        |        |        |        | Not selected.  |                |   |
| 000065 Loss of Instrument Air / 8  |        |  |        | R      |        | S      | R 065 AA1.05 Ability to operate and / or monitor the following as they apply to the Loss of Instrument Air: RPS<br><br>S 065 G2.1.20 Ability to execute procedure steps.   | 3.3<br><br>4.2 |   |
| W/E04 LOCA Outside Containment / 3                                       |        |  |        |        |        |        | Not selected.  |                |   |
| W/E11 Loss of Emergency Coolant Recirc. / 4                              |        |  |        |        |        |        | Not selected.  |                |   |
| BW/E04; W/E05 Inadequate Heat Transfer - Loss of Secondary Heat Sink / 4 |        |  | R      |        |        | S      | R BW/E04 EK3.4 Knowledge of the reasons for the following responses as they apply to the (Inadequate Heat Transfer): RO or SRO function within the control room team as appropriate to the assigned position, in such a way that procedures are adhered to and the limitations in the facilities license and amendments are not violated.<br><br>S BW/E04 G2.4.44 Knowledge of emergency plan protective action recommendations. | 3.5<br><br>4.0 |   |
|  | K<br>1 | K<br>2   | K<br>3 | A<br>1 | A<br>2 | G      |  |                |   |
| K/A Category Totals:   | 4      | 2  | 4      | 2      | 3<br>3 | 3<br>3 | Group Point Total:   | 18 / 6         |   |

| E/APE # / Name / Safety Function             | K<br>1 | K<br>2 | K<br>3 | A<br>1 | A<br>2 | G | K/A Topic(s)  | IR         | # |
|--|--------|--------|--------|--------|--------|---|---|------------|---|
| 000001 Continuous Rod Withdrawal / 1         |        | R      |        |        |        |   | R 001 AK2.05 Knowledge of the interrelations between the Continuous Rod Withdrawal and the following: Rod motion lights.  | 2.9        |   |
| 000003 Dropped Control Rod / 1               |        |        |        |        |        | R | R 003 G2.4.10 Knowledge of annunciator response procedures.   | 3.0        |   |
| 000005 Inoperable/Stuck Control Rod / 1      |        |        |        |        | S      |   | S 005AA2.01 Ability to determine and interpret the following as they apply to the Inoperable / Stuck Control Rod: Stuck or inoperable rod from in-core and ex-core NIS, in-core or loop temperature measurements.   | 4.1        |   |
| 000024 Emergency Boration / 1                |        |        |        |        |        |   | Not selected.   |            |   |
| 000028 Pressurizer Level Malfunction / 2     |        |        |        |        | R      |   | R 028 AA2.06 Ability to determine and interpret the following as they apply to the Pressurizer Level Control Malfunctions: Letdown flow indicator.  | 2.7        |   |
| 000032 Loss of Source Range NI / 7           |        |        |        |        |        |   | Not selected.   |            |   |
| 000033 Loss of Intermediate Range NI / 7     |        |        |        |        |        |   | Not selected.   |            |   |
| 000036 (BW/A08) Fuel Handling Accident / 8   |        |        |        |        |        |   | Not selected.   |            |   |
| 000037 Steam Generator Tube Leak / 3         |        |        |        |        |        |   | Not selected.   |            |   |
| 000051 Loss of Condenser Vacuum / 4          |        |        |        |        |        |   | Not selected.   |            |   |
| 000059 Accidental Liquid RadWaste Rel. / 9   |        | R      |        |        |        | S | R 059 AK2.01 Knowledge of the interrelations between the Accidental Liquid Radwaste Release and the following: Radioactive-liquid monitors.<br><br>S 059 G2.3.6 Knowledge of the requirements for reviewing and approving release permits.  | 2.7<br>3.1 |   |
| 000060 Accidental Gaseous Radwaste Rel. / 9  |        |        |        | R      |        |   | R 060 AA1.01 Ability to operate and / or monitor the following as they apply to the Accidental Gaseous Radwaste: Area radiation monitors.   | 2.8        |   |
| 000061 ARM System Alarms / 7                 |        |        |        |        |        |   | Not selected.   |            |   |
| 000067 Plant Fire On-site / 8                |        |        |        |        |        | S | S 067 G2.4.27 Knowledge of fire in plant procedure.   | 3.5        |   |
| 000068 (BW/A06) Control Room Evac. / 8       |        |        | R      |        |        |   | R BW/A06 AK3.1 Knowledge of the reasons for the following responses as they apply to the (Shutdown Outside Control Room): 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. | 3.4        |   |
| 000069 (W/E14) Loss of CTMT Integrity / 5    |        |        |        |        |        |   | Not selected.   |            |   |
| 000074 (W/E06&E07) Inad. Core Cooling / 4    |        |        |        |        |        |   | Not selected.   |            |   |
| 000076 High Reactor Coolant Activity / 9     |        |        |        |        |        |   | Not selected.   |            |   |
| W/E01 & E02 Rediagnosis & SI Termination / 3 |        |        |        |        |        |   | Not selected.   |            |   |
| W/E13 Steam Generator Over-pressure / 4      |        |        |        |        |        |   | Not selected.   |            |   |
| W/E15 Containment Flooding / 5               |        |        |        |        |        |   | Not selected.   |            |   |
| W/E16 High Containment Radiation / 9         |        |        |        |        |        |   | Not selected.   |            |   |
| BW/A01 Plant Runback / 1                     |        |        |        |        |        | S | S BW/A01 G2.2.25 Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.   | 3.7        |   |
| BW/A02&A03 Loss of NNI-X/Y / 7               |        |        |        |        |        |   | Not selected.   |            |   |
| BW/A04 Turbine Trip / 4                      | R      |        |        |        |        |   | R BW/A04 AK1.1 Knowledge of the operational implications of the following concepts as they apply to the (Turbine Trip): Components, capacity, and function of emergency systems.  | 3.0        |   |
| BW/A05 Emergency Diesel Actuation / 6        |        |        |        |        |        |   | Not selected.   |            |   |
| BW/A07 Flooding / 8                          |        |        |        |        |        |   | Not selected.   |            |   |

ES-401  
Oconee 2006-301

PWR Examination Outline  
Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (RO-R / SRO-S)

Form ES-401-2

| E/APE # / Name / Safety Function            | K<br>1 | K<br>2 | K<br>3 | A<br>1 | A<br>2 | G      | K/A Topic(s)  | IR  | #   |
|---|--------|--------|--------|--------|--------|--------|---|-----|-----|
| BW/E03 Inadequate Subcooling Margin / 4     |        |        |        |        |        |        | Not selected.   |     |     |
| BW/E08; W/E03 LOCA Cooldown - Depress. / 4  |        |        | R      |        |        |        | R BW/E08 EK3.2 Knowledge of the reasons for the following responses as they apply to the (LOCA Cooldown): Normal, abnormal and emergency operating procedures associated with (LOCA Cooldown).        | 3.0 |     |
| BW/E09; CE/A13; W/E09&E10 Natural Circ. / 4 |        |        |        |        |        |        | Not selected.   |     |     |
| BW/E13&E14 EOP Rules and Enclosures         | R      |        |        |        |        |        | R BW/E13 EK1.2 Knowledge of the operational implications of the following concepts as they apply to the (EOP Rules): Normal, abnormal and emergency operating procedures associated with (EOP Rules). | 3.0 |     |
| CE/A11; W/E08 RCS Overcooling - PTS / 4     |        |        |        |        |        |        | Not selected.   |     |     |
| CE/A16 Excess RCS Leakage / 2               |        |        |        |        |        |        | Not selected.   |     |     |
| CE/E09 Functional Recovery                  |        |        |        |        |        |        | Not selected.   |     |     |
|   | K<br>1 | K<br>2 | K<br>3 | A<br>1 | A<br>2 | G      |   |     |     |
| K/A Category Point Totals:                  | 2      | 2      | 2      | 1      | 1<br>1 | 1<br>3 | Group Point Total:  |     | 9/4 |

| System # / Name                          | K<br>1 | K<br>2 | K<br>3 | K<br>4 | K<br>5 | K<br>6 | A<br>1 | A<br>2 | A<br>3 | A<br>4 | G | K/A Topic(s)  | IR                | # |
|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|---|-------------------|---|
| 003 Reactor Coolant Pump                 |        |        |        |        |        | R      |        |        |        |        |   | R 003 K6.02 Knowledge of the effect of a loss or malfunction on the following will have on the RCPS: RCP seals and seal water supply.   | 2.7               |   |
| 004 Chemical and Volume Control          |        |        |        |        |        |        |        |        |        |        | R | R 004 G2.4.46 Ability to verify that alarms are consistent with the plant conditions.<br><br>R 004 A4.02 Ability to manually operate and/or monitor in the control room: Calculation of ECP and related boration/dilution/reactivity relationships.   | 3.5<br>3.2        |   |
| 005 Residual Heat Removal                |        |        |        |        |        |        |        | R      |        |        |   | R 005 A2.04 Ability to (a) predict the impacts of the following malfunctions or operations on the RHRS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: RHR valve malfunction.  | 2.9               |   |
| 006 Emergency Core Cooling               |        | R      |        |        |        |        |        |        | R      |        |   | R 006 K2.01 Knowledge of bus power supplies to the following: ECCS pumps.<br><br>R 006 A3.02 Ability to monitor automatic operation of the ECCS, including: Pumps.  | 3.6<br>4.1        |   |
| 007 Pressurizer Relief/Quench Tank       |        |        |        | R      |        |        |        |        |        |        |   | R 007 K4.01 Knowledge of PRTS design feature(s) and/or interlock(s) which provide for the following: Quench tank cooling.   | 2.6               |   |
| 008 Component Cooling Water              |        |        |        | R      |        |        |        |        | R      |        |   | R 008 K4.02 Knowledge of CCWS design feature(s) and/or interlock(s) which provide for the following: Operation of the surge tank, including the associated valves and controls.<br><br>R 008 A3.01 Ability to monitor automatic operation of the CCWS, including: Setpoints on instrument signal levels for normal operations, warnings, and trips that are applicable to the CCWS.   | 2.9<br>3.2        |   |
| 010 Pressurizer Pressure Control         |        |        |        |        |        | R      |        |        |        |        | S | R 010 K6.04 Knowledge of the effect of a loss or malfunction of the following will have on the PZR PCS: PRT.<br><br>S 010 G2.2.22 Knowledge of limiting conditions for operations and safety limits.  | 2.9<br>4.1        |   |
| 012 Reactor Protection                   |        |        |        |        |        |        |        |        | R      |        |   | R 012 A3.06 Ability to monitor automatic operation of the RPS, including: Trip logic.   | 3.7               |   |
| 013 Engineered Safety Features Actuation | R      |        |        |        |        |        |        | S      |        |        | R | R 013 G2.4.2 Knowledge of system set points, interlocks and automatic actions associated with EOP entry conditions.<br><br>R 013 K1.12 Knowledge of the physical connections and/or cause effect relationships between the ESFAS and the following systems: ED/G.<br><br>S 013 A2.03 Ability to (a) predict the impacts of the following malfunctions or operations on the ESFAS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Rapid depressurization. | 3.9<br>4.1<br>4.7 |   |
| 022 Containment Cooling                  |        |        | R      |        |        |        |        |        |        |        | R | R 022 G2.1.33 Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.<br><br>R 022 K3.02 Knowledge of the effect that a loss or malfunction of the CCS will have on the following: Containment instrumentation readings.  | 3.4<br>3.0        |   |
| 025 Ice Condenser                        |        |        |        |        |        |        |        |        |        |        |   | Not applicable.   |                   |   |
| 026 Containment Spray                    |        |        |        |        |        |        |        | S      |        |        | R | R 026 G2.4.20 Knowledge of operational implications of EOP warnings, cautions, and notes.<br><br>S 026 A2.04 Ability to (a) predict the impacts of the following malfunctions or operations on the CSS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Failure of spray pump.  | 3.3<br>4.2        |   |
| 039 Main and Reheat Steam                |        |        |        |        | R      |        |        |        |        |        |   | R 039 K5.01 Knowledge of the operational implications of the following concepts as they apply to the MRSS: Definition and causes of steam/water hammer.   | 2.9               |   |



| System # / Name                   | K<br>1 | K<br>2 | K<br>3 | K<br>4 | K<br>5 | K<br>6 | A<br>1 | A<br>2 | A<br>3 | A<br>4 | G | K/A Topic(s)   | IR                 | #    |
|-----------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|--|--------------------|------|
| 059 Main Feedwater                |        |        |        |        |        |        |        |        |        |        | R | R 059 A4.01 Ability to manually operate and monitor in the control room: MFW turbine trip indication.  | 3.1                |      |
| 061 Auxiliary/Emergency Feedwater |        |        |        |        |        |        | R      |        | R      |        |   | R 061 A1.05 Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the AFW controls including: AFW flow/motor amps.<br><br>R 061 A3.03 Ability to monitor automatic operation of the AFW, including: AFW S/G level control on automatic start.   | 3.6<br><br>3.9     |      |
| 062 AC Electrical Distribution    |        |        |        |        |        |        |        | R      |        | R      |   | R 062 A2.07 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 opening a disconnect under load.<br><br>R 062 A4.03 Ability to manually operate and/or monitor in the control room: Synchroscope, including an understanding or running and incoming voltages. | 3.0<br><br>2.8     |      |
| 063 DC Electrical Distribution    |        | R      |        |        |        |        |        |        |        |        |   | R 063 K2.01 Knowledge of bus power supplies to the following: Major DC loads.  | 2.9                |      |
| 064 Emergency Diesel Generator    |        |        |        |        |        |        | R      |        |        |        | S | R 064 A1.03 Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ED/G system controls including: Operating voltages, currents, and temperatures.<br><br>S 064 G2.4.30 Knowledge of which events related to system operations/status should be reported to outside agencies.  | 3.2<br><br>3.6     |      |
| 073 Process Radiation Monitoring  |        |        |        |        |        |        | R      |        |        |        |   | R 073 A1.01 Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the PRM system controls including: Radiation levels.  | 3.2                |      |
| 076 Service Water                 | R      |        |        |        |        |        |        |        |        |        | S | R 076 K1.08 Knowledge of the physical connections and/or cause-effect relationships between the SWS and the following systems: RHR system.<br><br>S 076 G2.1.12 Ability to apply technical specifications for a system.  | 3.5<br><br>4.0     |      |
| 078 Instrument Air                |        |        | R      |        |        |        |        |        |        |        |   | R 078 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                |      |
| 103 Containment                   | R      |        |        |        |        |        |        |        |        |        |   | R 103K1.03 Knowledge of the physical connections and/or cause-effect relationships between the containment system and the following systems: Shield building vent system.  | 3.1                |      |
|                                   | K<br>1 | K<br>2 | K<br>3 | K<br>4 | K<br>5 | K<br>6 | A<br>1 | A<br>2 | A<br>3 | A<br>4 | G |  |                    |      |
| K/A Category Point Totals:        | 3      | 2      | 2      | 2      | 1      | 2      | 3      | 2      | 4      | 3      | 4 | 3  | Group Point Total: | 28/5 |

| System # / Name                           | K<br>1 | K<br>2 | K<br>3 | K<br>4 | K<br>5 | K<br>6 | A<br>1 | A<br>2 | A<br>3 | A<br>4 | G | K/A Topic(s)  | IR         | # |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|---|------------|---|
| 001 Control Rod Drive                     |        |        |        |        |        | R      |        |        |        |        |   | R 001 K6.14 Knowledge of the effect of a loss or malfunction on the following CRDS components: Location and interpretation of reactor trip breaker.   | 4.0        |   |
| 002 Reactor Coolant                       |        |        | R      |        |        |        |        |        |        |        |   | R 002 K3.03 Knowledge of the effect that a loss or malfunction of the RCS will have on the following: Containment.  | 4.2        |   |
| 011 Pressurizer Level Control             |        |        |        | R      |        |        |        |        |        |        |   | R 011 K4.02 Knowledge of PZR LCS design feature(s) and / or interlock(s) which provide for the following: PZR level controller.   | 3.3        |   |
| 014 Rod Position Indication               |        |        |        |        |        |        |        |        |        |        |   | Not selected.   |            |   |
| 015 Nuclear Instrumentation               |        |        |        |        |        |        |        |        |        |        |   | Not selected.   |            |   |
| 016 Non-nuclear Instrumentation           |        |        |        |        |        |        |        |        |        |        |   | Not selected.   |            |   |
| 017 In-core Temperature Monitor           |        |        |        |        |        |        |        |        |        |        |   | Not selected.   |            |   |
| 027 Containment Iodine Removal            |        |        |        |        |        |        |        |        |        |        |   | Not selected.   |            |   |
| 028 Hydrogen Recombiner and Purge Control |        |        |        |        |        |        |        |        |        |        | R | R 028 G2.1.8 Ability to coordinate personnel activities outside the control room.   | 3.8        |   |
| 029 Containment Purge                     |        |        |        |        |        |        |        |        |        |        |   | Not selected.   |            |   |
| 033 Spent Fuel Pool Cooling               |        |        |        |        |        |        | R      |        |        |        |   | R 033 A1.01 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: Spent Fuel Pool Water Level.  | 2.7        |   |
| 034 Fuel Handling Equipment               |        |        |        |        |        |        |        |        |        |        |   | Not selected.   |            |   |
| 035 Steam Generator                       | R      |        |        |        |        |        |        |        |        |        |   | R 035 K1.02 Knowledge of the physical connections and/or cause-effect relationship between the S/GS and the following systems: MRSS.  | 3.2        |   |
| 041 Steam Dump/Turbine Bypass Control     |        |        |        |        |        |        |        |        | R      |        |   | R 041 A3.01 Ability to monitor automatic operation of the SDS, including: RCS T-ave. meter (cooldown rate).   | 3.2        |   |
| 045 Main Turbine Generator                |        |        |        | R      |        |        |        |        |        |        |   | R 045 K5.23 Knowledge of the operational implications of the following concepts as they apply to the MT/B System: Relationship between rod control and RCS boron concentration during T/G load increases.   | 2.7        |   |
| 055 Condenser Air Removal                 |        |        |        |        |        |        |        |        |        |        |   | Not selected.   |            |   |
| 056 Condensate                            |        |        |        |        |        |        |        |        |        |        |   | Not selected.   |            |   |
| 068 Liquid Radwaste                       |        |        |        |        |        |        |        | S      |        |        |   | S 068 A2.02 Ability to (a) predict the impacts of the following malfunctions or operations on the Liquid Radwaste System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Lack of tank recirculation prior to release.  | 2.8        |   |
| 071 Waste Gas Disposal                    |        |        |        |        |        |        |        |        |        |        |   | Not selected.   |            |   |
| 072 Area Radiation Monitoring             |        |        |        |        |        |        |        |        |        |        |   | Not selected.   |            |   |
| 075 Circulating Water                     |        | R      |        |        |        |        |        |        |        |        |   | R 075 K2.03 Knowledge of bus power supplies to the following: Emergency/essential SWS pumps.  | 2.6        |   |
| 079 Station Air                           |        |        |        |        |        |        |        | R      |        |        | S | R 079 A2.01 Ability to (a) predict the impacts of the following malfunctions or operations on the SAS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Cross-connection with IAS.<br><br>S 079 G2.4.4 Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures. | 2.9<br>4.3 |   |

| ES-401<br>Oconee 2006-301  |        | PWR Examination Outline<br>Plant Systems - Tier 2/Group 2 (RO-R / SRO-S) |        |        |        |        |        |        |        |        |   |  | Form ES-401-2      |      |
|----------------------------|--------|--|--------|--------|--------|--------|--------|--------|--------|--------|---|--|--------------------|------|
| System # / Name            | K<br>1 | K<br>2   | K<br>3 | K<br>4 | K<br>5 | K<br>6 | A<br>1 | A<br>2 | A<br>3 | A<br>4 | G | K/A Topic(s)   | IR                 | #    |
| 086 Fire Protection        |        |  |        |        |        |        |        |        |        |        | S | S 086 G2.1.14 Knowledge of system status criteria which require the notification of plant personnel. | 3.3                |      |
| K/A Category Point Totals: | 1      | 1  | 1      | 1      | 1      | 1      | 1      | 1      | 1      | 1      | 0 | 1<br>2   | Group Point Total: | 10/3 |

| ES-401                      |           | Generic Knowledge and Abilities Outline (Tier 3)  |     |    | Form ES-401-3 |   |
|-----------------------------|-----------|---|-----|----|---------------|---|
| Facility: Oconee            |           | Date of Exam : June 2006  |     |    |               |   |
| Category                    | K/A #     | Topic   | RO  |    | SRO - Only    |   |
|                             |           |   | IR  | #  | IR            | # |
| Conduct of Operations       | R G2.1.2  | Knowledge of operator responsibilities during all modes of plant operation.   | 3.0 | 1  |               |   |
|                             | R G2.1.22 | Ability to determine Mode of Operation.   | 2.8 | 1  |               |   |
|                             | R G2.1.30 | Ability to locate and operate components, including local controls.   | 3.9 | 1  |               |   |
|                             | S G2.1.6  | Ability to supervise and assume a management role during plant transients and upset conditions.   |     |    | 4.3           | 1 |
|                             | S G2.1.10 | Knowledge of conditions and limitations in the facility license.  |     |    | 3.9           | 1 |
|                             | N/A       |   |     |    |               |   |
|                             | Subtotal  |   |     | 3  |               | 2 |
| Equipment Control           | R G2.2.12 | Knowledge of surveillance procedures.   | 3.0 | 1  |               |   |
|                             | R G2.2.13 | Knowledge of tagging and clearance procedures.  | 3.6 | 1  |               |   |
|                             | S G2.2.11 | Knowledge of the process for controlling temporary changes.   |     |    | 3.4           | 1 |
|                             | S G2.2.23 | Ability to track limiting conditions for operations.  |     |    | 3.8           | 1 |
|                             | N/A       |   |     |    |               |   |
|                             | N/A       |   |     |    |               |   |
|                             | Subtotal  |   |     | 2  |               | 2 |
| Radiation Control           | R G2.3.1  | Knowledge of 10 CFR: 20 and related facility radiation control requirements.  | 2.6 | 1  |               |   |
|                             | R G2.3.4  | Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized.             | 2.5 | 1  |               |   |
|                             | R G2.3.10 | Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.                               | 2.9 | 1  |               |   |
|                             | S G2.3.8  | Knowledge of the process for performing a planned gaseous radioactive release.  |     |    | 3.2           | 1 |
|                             | N/A       |   |     |    |               |   |
|                             | N/A       |   |     |    |               |   |
|                             | Subtotal  |   |     | 3  |               | 1 |
| Emergency Procedures / Plan | R G2.4.16 | Knowledge of EOP implementation hierarchy and coordination with other support procedures.   | 3.0 | 1  |               |   |
|                             | R G2.4.35 | Knowledge of local auxiliary operator tasks during emergency operations including system geography and system implications.               | 3.3 | 1  |               |   |
|                             | S G2.4.6  | Knowledge of symptom based EOP mitigation strategies.   |     |    | 4.0           | 1 |
|                             | S G2.4.38 | Ability to take actions called for in the facility emergency plan, including (if required) supporting or acting as emergency coordinator. |     |    | 4.0           | 1 |
|                             | N/A       |   |     |    |               |   |
|                             | N/A       |   |     |    |               |   |
|                             | Subtotal  |   |     | 2  |               | 2 |
| Tier 3 Point Total          |           |   |     | 10 |               | 7 |