

Draft Submittal

**ST. LUCIE AUGUST 2004
EXAM NOS. 05000335/2004301
AND 05000389/2004301**

AUGUST 9 - 20, 2004

Written Exam Sample outlines

PLANS

ES-401 PWR Examination Outline ES-401-2 draft Rev 9

| Facility: St. Lucie | | Date of Exam: 8/21/2004 | | | | | | | | | | | | | | | | |
|---|--------|-------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------|---|---|-----|-----|-------|
| 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 | K | A | A 2 | G * | Total |
| 1 Emergency & Abnormal Plant Evolutions | 1 | 2 | 3 | 3 | | | | 4 | 4 | | | 2 | 18 | 0 | 0 | 4 | 3 | 7 |
| | 2 | 1 | 2 | 2 | | | | 2 | 1 | | | 1 | 9 | 0 | 0 | 2 | 3 | 5 |
| | Tier | | | | | | | | | | | | | | | | | |
| | Totals | 3 | 5 | 5 | | | | 6 | 5 | | | 3 | 27 | 0 | 0 | 6 | 6 | 12 |
| 2 Plant Systems | 1 | 1 | 4 | 3 | 2 | 2 | 0 | 3 | 5 | 2 | 4 | 2 | 28 | 0 | 0 | 3 | 1 | 4 |
| | 2 | 4 | 0 | 1 | 2 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 10 | 0 | 0 | 0 | 2 | 2 |
| | Tier | | | | | | | | | | | | | | | | | |
| | Totals | 5 | 4 | 4 | 4 | 2 | 2 | 3 | 5 | 2 | 5 | 2 | 38 | 0 | 0 | 3 | 3 | 6 |
| 3 Generic Knowledge and Abilities Categories | | 1 | | 2 | | 3 | | 4 | | | | | | 1 | 2 | 3 | 4 | |
| | | 2 | | 3 | | 2 | | 3 | | | | 10 | | 1 | 2 | 2 | 2 | 7 |

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 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; avoid selecting more than two K/A topics from a 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 topic's importance ratings (IR) for the applicable license level, and the point totals for each system and category. Enter the Group and Tier totals for each category in the Table above; summarize all the SRO-only knowledge and non-A2 ability categories 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.

DRAFT

| ES-401 PWR Examination Outline | | | | | | | | | | ES-401-2 draft Rev 9 | | | | | | | |
|--|------|------|------|------|------|------|---|------|---|----------------------|----------|----------|----------|----------|----------|---------------------------|-----------|
| Emergency and Abnormal Plant Evolutions - Tier 1/Group 1 (RO) | | | | | | | | | | | | | | | | | |
| E/APE # / Name / Safety Function | K 1 | K 2 | K 3 | A 1 | A 2 | G 2 | K/A Topic(s) | Imp. | # | | | | | | | | |
| 000007 (CE/E02) Reactor Trip - Stabilization - Recovery / 1 | | | | | 2.04 | | Ability to determine or interpret the following as they apply to a reactor trip: If reactor should have tripped but has not done so, manually trip the reactor and carry out actions in ATWS EOP . | 4.4 | | | | | | | | | |
| 000008 Pressurizer Vapor Space Accident / 3 | | | 3.03 | | | | Knowledge of the reasons for the following responses as they apply to the Pressurizer Vapor Space Accident: Actions contained in EOP for PZR vapor space accident/ LOCA | 4.1 | | | | | | | | | |
| 000009 Small Break LOCA / 3 | | 2.03 | | | | | Knowledge of the interrelations between the small break LOCA and the following: S/Gs | 3.0 | | | | | | | | | |
| 000011 Large Break LOCA / 3 | | | | | | | randomly deselected | | | | | | | | | | |
| 000015/17 RCP Malfunction / 4 | | | | | 1.03 | | Ability to operate and / or monitor the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow): Reactor trip alarms, switches, and indicators | 3.7* | | | | | | | | | |
| 000022 Loss of Reactor Coolant Makeup / 2 | | | | | 2.04 | | Ability to determine and interpret the following as they apply to the Loss of Reactor Coolant Pump Makeup: How long PZR level can be maintained within limits | 2.9 | | | | | | | | | |
| 000025 Loss of RHR System / 4 | 1.01 | | | | | | apply to Loss of Residual Heat Removal System: Loss of RHRS during all modes of operation | 3.9 | | | | | | | | | |
| 000026 Loss of Component Cooling Water / 8 | | | | | | 4.50 | Ability to verify system alarm setpoints and operate controls identified in the alarm response manual. | 3.3 | | | | | | | | | |
| 000027 Pressurizer Pressure Control System Malfunction / 3 | | 2.03 | | | | | Knowledge of the interrelations between the Pressurizer Pressure Control Malfunctions and the following: Controllers and positioners | 2.6 | | | | | | | | | |
| 000029 Anticipated Transient w/o Scram / 1 | | 2.06 | | | | | Knowledge of the interrelations between the and the following an ATWS: Breakers, relays, and disconnects | 2.9* | | | | | | | | | |
| 000038 Steam Generator Tube Rupture / 3 | | | | | 2.09 | | Ability to determine or interpret the following as they apply to a SGTR: Existence of natural circulation, using plant parameters. | 4.2 | | | | | | | | | |
| 000040 (CE/E05) Steam Line Rupture - Excessive Heat Transfer / 4 | 1.07 | | | | | | Knowledge of the operational implications of the following concepts as they apply to Steam Line Rupture: Effects of feedwater introduction on dry S/G | 3.4 | | | | | | | | | |
| 000054 (CE/E06) Loss of Main Feedwater / 4 | | | 3.02 | | | | Knowledge of the reasons for the following responses as they apply to the Loss of Main Feedwater (MFW): AK3.02 Matching of feedwater and steam flows 3.4* 3.7* | 3.4* | | | | | | | | | |
| 000055 Station Blackout / 6 | | | | 1.05 | | | Ability to operate and monitor the following as they apply to a Station Blackout: EA1.05 Battery, when approaching fully discharged 3.3 / 3.6 | 3.3 | | | | | | | | | |
| 000056 Loss of Off-site Power / 6 | | | | | | 1.23 | Ability to perform specific system and integrated plant procedures during all modes of plant operation. (CFR: 45.2 / 45.6) RO 3.9 SRO 4.0 | 3.9 | | | | | | | | | |
| 000057 Loss of Vital Ac Elec. Inst. Bus. / 6 | | | 3.01 | | | | Knowledge of the reasons for the following responses as they apply to the Loss of Vital AC Instrument Bus: AK3.01 Actions contained in EOP for loss of vital ac electrical instrument bus 4.1 / 4.4 | 4.1 | | | | | | | | | |
| 000058 Loss of DC Power / 6 | | | | | 2.02 | | Ability to determine and interpret the following as they apply to the Loss of DC Power: AA2.02 125V dc bus voltage, low/critical low, alarm. 3.3* / 3.6 | 3.3* | | | | | | | | | |
| 000062 Loss of Nuclear Service Water / 4 | | | | 1.06 | | | Ability to operate and / or monitor the following as they apply to the Loss of Nuclear Service Water (SWS): AA1.06 Control of flow rates to components cooled by the SWS 2.9 / 2.9 | 2.9 | | | | | | | | | |
| 000065 Loss of Instrument Air / 8 | | | | 1.02 | | | Ability to operate and / or monitor the following as they apply to the Loss of Instrument Air: AA1.02 Components served by instrument air to minimize drain on system . 2.6 / 2.8 | 2.6 | | | | | | | | | |
| K/A Category Totals: | | | | | | | | | | 2 | 3 | 3 | 4 | 4 | 2 | Group Point Total: | 18 |

| ES-401 PWR Examination Outline | | | | | | | | | | ES-401-2 draft Rev | |
|---|--------|--------|--------|--------|--------|--------|--|--|--|-----------------------|---|
| Emergency and Abnormal Plant Evolutions - Tier 1/Group 2 (RO) | | | | | | | | | | | |
| E/APE # / Name / Safety Function | K 1 | K 2 | K 3 | A 1 | A 2 | G 2 | K/A Topic(s) | | | Imp. | # |
| 000001 Continuous Rod Withdrawal / 1 | | | | | | | Randomly deselected | | | | |
| 000003 Dropped Control Rod / 1 | | | | | | | Randomly deselected | | | | |
| 000005 Inoperable/Stuck Control Rod / 1 | | | | | | | Randomly deselected | | | | |
| 000024 Emergency Boration / 1 | | 2.04 | | | | | Knowledge of the interrelations between the Emergency Boration and the following: AK2.04 Pumps 2.6 2.5 (CFR 41.7 / 45.7) | | | 2.6 | |
| 000028 Pressurizer Level Malfunction / 2 | | | | 1.07 | | | Level Control Malfunctions: AA1.07 Charging pumps maintenance of PZR level (including manual backup) 3.3 /3.3 (CFR 41.7 / 45.5 / 45.6) | | | 3.3 | |
| 000032 Loss of Source Range NI / 7 | | | | 1.01 | | | Ability to operate and / or monitor the following as they apply to the Loss of Source Range Nuclear Instrumentation: AA1.01 Manual restoration of power 3.1* 3.4* (CFR 41.7 / 45.5 / 45.6) | | | 3.1* | |
| 000033 Loss of Intermediate Range NI / 7 | | | | | | | Randomly deselected | | | | |
| 000036 Fuel Handling Accident / 8 | | | | | | | Randomly deselected | | | | |
| 000037 Steam Generator Tube Leak / 3 | | | | | 2.08 | | Ability to determine and interpret the following as they apply to the Steam Generator Tube Leak: AA2.08 Failure of Condensate air ejector exhaust monitor 2.8 / 3.3 (CFR: 43.5 / 45.13) | | | 2.8 | |
| 000051 Loss of Condenser Vacuum / 4 | | | 3.01 | | | | Knowledge of the reasons for the following responses as they apply to the Loss of Condenser Vacuum: AK3.01 Loss of steam dump capability upon loss of condenser vacuum 2.8* / 3.1* (CFR 41.5,41.10 / 45.6 / 45.13) | | | 2.8* | |
| 000059 Accidental Liquid Radwaste Rel. / 9 | | | | | | | Randomly deselected | | | | |
| 000060 Accidental Gaseous Radwaste Rel. / 9 | | | | | | | Randomly deselected | | | | |
| 000061 ARM System Alarms / 7 | | | | | | | Randomly deselected | | | | |
| 000067 Plant Fire On-site / 9 | | | | | | | Randomly deselected | | | | |
| 000068 Control Room Evac. / 8 | | | | | | | Randomly deselected | | | | |
| 000069 Loss of CTMT Integrity / 5 | | | | | | | Randomly deselected | | | | |
| 000074 Inad. Core Cooling / 4 | | | | | | 1.27 | Knowledge of system purpose and or function. (CFR: 41.7) RO 2.8 SRO 2.9 | | | 2.8 | |
| 000076 High Reactor Coolant Activity / 9 | | | | | | | Randomly deselected | | | | |
| CE/E09 Functional Recovery | | | | | | | Randomly deselected | | | | |
| CE/A11 RCS Overcooling - PTS / 4 | | | 3.4 | | | | AK3.4 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. IMPORTANCE RO 3.1 SRO 3.3 | | | 3.1 | |
| CE/A13 Natural Circ. / 4 | | 1.1 | | | | | AK1.1 Knowledge of the operational implications of the following concepts as they apply to the (Natural Circulation Operations) AK1.1 Components, capacity, and function of emergency systems. IMPORTANCE RO 3.0 SRO 3.5(CFR: 41.8 / 41.10 / 45.3) | | | 3.0 | |
| CE/A16 Excess RCS Leakage / 2 | | 2.1 | | | | | AK2. Knowledge of the interrelations between the (Excess RCS Leakage) and the following: (CFR: 41.7 / 45.7) AK2.1 Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features. IMPORTANCE RO 3.2 SRO 3.5 | | | 3.2 | |
| K/A Category Totals: | 1 | 2 | 2 | 2 | 1 | 1 | Group Point Total: | | | 9 | 0 |

| PWR Examination Outline | | | | | | | | | | | | | ES-401-2 draft | | | |
|--|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|---|---------------------------|-----------|--|
| Plant Systems - Tier 2 Group 1 (RO) | | | | | | | | | | | | | Rev 2 | | | |
| System # / Name | K1 | K2 | K3 | K4 | K5 | K6 | A1 | A2 | A3 | A4 | G | | K/A Topic(s) | Imp. | # | |
| 003 Reactor Coolant Pump | 1.12 | | | | | | | | | | | | Knowledge of the physical connections and/or cause-effect relationships between the RCPS and the following systems: K1.12 CCWS 3.0 3.3 (CFR: 41.2 to 41.9 / 45.7 to 45.8) | 3.0 | | |
| 004 Chemical Volume Control | | 2.06 | | | | | | | | | | | Knowledge of bus power supplies to the following: K2.06 Control instrumentation 2.6* 2.7 (CFR: 41.7) | 2.6* | | |
| 005 Residual Heat Removal | | | | | | | 1.05 | | | | | | Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the RHRS controls including: A1.05 Detection of and response to presence of water in RHR emergency sump. 3.3* 3.3* (CFR: 41.5 / 45.5) | 3.3* | | |
| 005 Residual Heat Removal | | | | | 5.01 | | | | | | | | Knowledge of the operational implications of the following concepts as they apply the RHRS: K5.01 Ni ductility transition temperature (brittle fracture) 2.6 2.9 (CFR: 41.5 / 45.7) | 2.6 | | |
| 006 Emergency Core Cooling | | | | | | | | 2.12 | | | | | Ability to (a) predict the impacts of the following malfunctions or operations on the ECCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: A2.12 Conditions requiring actuation of ECCS 4.5 4.8 (CFR: 41.5 / 45.5) | 4.5 | | |
| 007 Pressurizer Relief/Quench Tank | | | | | | | 1.01 | | | | | | Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the PRTS controls including: (CFR: 41.5 / 45.5) A1.01 Maintaining quench tank water level within limits 2.9 / 3.1 | 2.9 | | |
| 008 Component Cooling Water | | | | | | | | | 2.05 | | | | Ability to (a) predict the impacts of the following malfunctions or operations on the CCWS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: A2.05 Effect of loss of instrument and control air on the position of the CCW valves that are air operated 3.3* 3.5 (CFR: 41.5 / 43.5 / 45.3 / 45.13) | 3.3* | | |
| 008 Component Cooling Water | | | | | | | | | | 4.02 | | | Ability to manually operate and/or monitor in the control room: A4.02 Filling and draining operations of the CCWS including the proper venting of the components 2.5* 2.5 (CFR: 41.7 / 45.5) | 2.5* | | |
| 010 Pressurizer Pressure Control | | | | | | | 1.06 | | | | | | Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the PZR PCS controls including: A1.05 Pressure effect on level 2.8 2.9 (CFR: 41.5 / 45.5) | 2.8 | | |
| 012 Reactor Protection | | | | | 5.01 | | | | | | | | Knowledge of the operational implications of the following concepts as they apply to the RPS: K5.01 DNB 3.3* 3.8 (CFR: 41.5 / 45.7) | 3.3* | | |
| 013 Engineered Safety Features Actuation | | | 3.03 | | | | | | | | | | Knowledge of the effect that a loss or malfunction of the ESFAS will have on the following: K3.03 Containment 4.3 4.7 (CFR: 41.7 / 45.6) | 4.3 | | |
| 013 Engineered Safety Features Actuation | | | | | | | | | | | 1.23 | | Ability to perform specific system and integrated plant procedures during all modes of plant operation. (CFR: 45.2 / 45.6) IMPORTANCE RO 3.9 SRO 4.0 | 3.9 | | |
| 022 Containment Cooling | | | | | | | | 3.01 | | | | | Ability to monitor automatic operation of the CCS, including: A3.01 Initiation of safeguards mode of operation 4.1 4.3 (CFR: 41.7 / 45.5) | 4.1 | | |
| 026 Containment Spray | | 2.01 | | | | | | | | | | | Knowledge of bus power supplies to the following: K2.01 Containment spray pumps 3.4* 3.6 (CFR: 41.7) | 3.4* | | |
| 028 Containment Spray | | | 3.02 | | | | | | | | | | Knowledge of the effect that a loss or malfunction of the CSS will have on the following: K3.02 Recirculation spray system 4.2* 4.3 (CFR: 41.7 / 45.6) | 4.2* | | |
| 038 Main and Reheat Steam | | | | | | | | | | | 2.22 | | Knowledge of limiting conditions for operations and safety limits. (CFR: 43.2 / 45.2) IMPORTANCE RO 3.4 SRO 4.1 | 3.4 | | |
| 056 Condensate | | | | | | | | 2.04 | | | | | 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: A2.04 Loss of condensate pumps 2.6 2.8* (CFR: 41.5 / 43.5 / 45.3 / 45.13) | 2.6 | | |
| 059 Main Feedwater | | | | 4.19 | | | | | | | | | Knowledge of MFW design feature(s) and/or interlock(s) which provide for the following: K4.19 Automatic feedwater isolation of MFW 3.2 3.4 (CFR: 41.7) | 3.2 | | |
| 061 Auxiliary/Emergency Feedwater | | | | 4.02 | | | | | | | | | Knowledge of AFW design feature(s) and/or interlock(s) which provide for the following: K4.02 AFW automatic start upon loss of MFW pump, SIG level, blackout, or safety injection 4.5 4.6 (CFR: 41.7) | 4.5 | | |
| 061 Auxiliary/Emergency Feedwater | | | 3.01 | | | | | | | | | | Knowledge of the effect that a loss or malfunction of the AFW will have on the following: K3.01 RCS 4.4 4.6 (CFR: 41.7 / 45.6) | 4.4 | | |
| 062 AC Electrical Distribution | | | | | | | | 2.09 | | | | | 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: A2.09 Consequences of exceeding current limitations 2.7 3.0* (CFR: 41.5 / 43.5 / 45.3 / 45.13) | 2.7 | | |
| 062 AC Electrical Distribution | | | | | | | | | | 4.02 | | | Ability to manually operate and/or monitor in the control room: A4.02 Remote racking in and out of breakers 2.5 2.8 (CFR: 41.7 / 45.5 / 45.8) | 2.5 | | |
| 063 DC Electrical | | 2.01 | | | | | | | | | | | Knowledge of bus power supplies to the following: (CFR: 41.7) K2.01 Major DC loads 2.9* 3.1* | 2.9* | | |
| 064 Emergency Diesel Generator | | 2.03 | | | | | | | | | | | Knowledge of bus power supplies to the following: K2.03 Control power 3.2* 3.6 (CFR: 41.7) | 3.2* | | |
| 073 Process Radiation Monitoring | | | | | | | | | | 4.01 | | | Ability to manually operate and/or monitor in the control room: A4.01 Effluent release 3.9 3.9 (CFR: 41.7 / 45.5 to 45.8) | 3.9 | | |
| 076 Service Water | | | | | | | | 2.01 | | | | | Ability to (a) predict the impacts of the following malfunctions or operations on the SWS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: A2.01 Loss of SWS 3.5* 3.7* (CFR: 41.5 / 43.5 / 45.3 / 45.13) | 3.5* | | |
| 078 Instrument Air | | | | | | | | | | | 4.01 | | Ability to manually operate and/or monitor in the control room: (CFR: 41.7 / 45.5 to 45.8) A4.01 Pressure gauges 3.1 3.1 | 3.1 | | |
| 103 Containment | | | | | | | | | | | 3.01 | | Ability to monitor automatic operation of the containment system, including: (CFR: 41.7 / 45.5) A3.01 Containment isolation 3.9 4.2 | 3.9 | | |
| K/A Category Totals: | 1 | 4 | 3 | 2 | 2 | 0 | 3 | 5 | 2 | 4 | 2 | | | Group Point Total: | 29 | |

| PWR Examination Outline | | | | | | | | | | | | | ES-401-2 draft Rev 9 | | |
|---|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|---|---------------------------|-----------|----------|
| Plant Systems - Tier 2 Group 2 (RO) | | | | | | | | | | | | | | | |
| System # / Name | K1 | K2 | K3 | K4 | K5 | K6 | A1 | A2 | A3 | A4 | G2 | K/A Topic(s) | Imp. | # | |
| 001 Control Rod Drive | | | | | | | | | | | | Randomly deselected | | | |
| 002 Reactor Coolant | | | | | | 6.12 | | | | | | Knowledge of the effect or a loss or malfunction on the following RCS components: K6.12 Code Safety valves 3.0 3.5(CFR: 41.7 / 45.7) | 3.0 | | |
| 011 Pressurizer Level Control | | | | | | | | | | 4.01 | | Ability to manually operate and/or monitor in the control room: A4.01 Charging pump and flow controls 3.5 3.2 (CFR: 41.7 / 45.5 to 45.8) | 3.5 | | |
| 014 Rod Position Indication | | | | | | | | | | | | Randomly deselected | | | |
| 015 Nuclear Instrumentation | | | | | | | | | | | | Randomly deselected | | | |
| 016 Non-nuclear Instrumentation | | | | | | | | | | | | Randomly deselected | | | |
| 017 In-core Temperature Monitor | | | 3.01 | | | | | | | | | Knowledge of the effect that a loss or malfunction of the ITM system will have on the following: (CFR: 41.7 / 45.6) K3.01 Natural circulation indications 3.5* 3.7* | 3.5* | | |
| 027 Containment Iodine Removal | 1.01 | | | | | | | | | | | Knowledge of the physical connections and/or cause effect relationships between the CIRS and the following systems: (CFR: 41.2 to 41.9 / 45.7 to 45.8) K1.01 CSS 3.4* 3.7* | 3.4* | | |
| 028 Hydrogen Recombiner and Purge Control | | | | | | | | | | | | Randomly deselected | | | |
| 029 Containment Purge | 1.02 | | | | | | | | | | | Knowledge of the physical connections and/or cause effect relationships between the Containment Purge System and the following systems: K1.02 Containment radiation monitor 3.3/ 3.6 | 3.3 | | |
| 033 Spent Fuel Pool Cooling | | | | | | | | | | | | Randomly deselected | | | |
| 034 Fuel Handling Equipment | | | | | | | | | | | | Randomly deselected | | | |
| 035 Steam Generator | 1.13 | | | | | | | | | | | Knowledge of the physical connections and/or cause-effect relationships between the S/GS and the following systems: K1.13 Condensate system 2.7 2.8 (CFR: 41.2 to 41.9 / 45.7 to 45.8) | 2.7 | | |
| 041 Steam Dump/Turbine Bypass Control | | | | | | 6.03 | | | | | | Knowledge of the effect of a loss or malfunction on the following will have on the SDS: K6.03 Controller and positioners, including ICS, S/G, CRDS 2.7 2.9 (CFR: 41.7 / 45.7) | 2.7 | | |
| 045 Main Turbine Generator | | | | | | | | | | | | Randomly deselected | | | |
| 055 Condenser Air Removal | | | | | | | | | | | | Randomly deselected | | | |
| 068 Liquid Rad Waste | 1.07 | | | | | | | | | | | Knowledge of the physical connections and/or cause effect relationships between the Liquid Radwaste System and the following systems: K1.07 Sources of liquid wastes for LRS 2.7 2.9 (CFR: 41.2 to 41.9 / 45.7 to 45.8) | 2.7 | | |
| 071 Waste Gas Disposal | | | | 4.05 | | | | | | | | Knowledge of design feature(s) and/or interlock(s) which provide for the following: K4.06 Sampling and monitoring of waste gas release tanks 2.7* 3.5* (CFR: 41.7) | 2.7* | | |
| 072 Area Radiation Monitoring | | | | | | | | | | | | Randomly deselected | | | |
| 075 Circulating Water | | | | 4.01 | | | | | | | | Knowledge of circulating water system design feature(s) and interlock(s) which provide for the following: K4.01 Heat sink 2.5 2.8 (CFR: 41.7) | 2.5 | | |
| 079 Station Air | | | | | | | | | | | | Randomly deselected | | | |
| 086 Fire Protection | | | | | | | | | | | | Randomly deselected | | | |
| K/A Category Totals: | 4 | 0 | 2 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | Group Point Total: | 10 | 4 |

| ES-401 | | Generic Knowledge and Abilities Outline (Tier 3) | | |
|--|--------|--|-----------------|-----------|
| Facility: St. Lucie | | Date of Exam: 8/21/2004 | | Level: RO |
| Category | K/A # | Topic | Imp. | # |
| 1 Conduct of Operations | 2.1.19 | 2.1.19 Ability to use plant computer to obtain and evaluate parametric information on system or component status. (CFR: 45.12) | 3.0 | |
| | 2.1.11 | 2.1.11 Knowledge of less than one hour technical specification action statements for systems. (CFR: 43.2 / 45.13) | 3.0 | |
| | | | | |
| | | | | |
| | | | | |
| | | | Subtotal | 2 |
| 2 Equipment Control | 2.2.28 | 2.2.28 Knowledge of new and spent fuel movement procedures. (CFR: 43.7 / 45.13) | 2.6 | |
| | 2.2.12 | 2.2.12 Knowledge of surveillance procedures. (CFR: 41.10 / 45.13) | 3.0 | |
| | 2.2.2 | 2.2.2 Ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels. (CFR: 45.2) | 4.0 | |
| | | | | |
| | | | | |
| | | | Subtotal | 3 |
| 3 Radiation Protection | 2.3.9 | 2.3.9 Knowledge of the process for performing a containment purge. (CFR: 43.4 / 45.10) | 2.5 | |
| | 2.3.10 | 2.3.10 Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure. (CFR: 43.4 / 45.10) | 2.9 | |
| | | | | |
| | | | | |
| | | | | |
| | | | Subtotal | 2 |
| 4 Emergency Procedures and Plan | 2.2.29 | 2.4.29 Knowledge of the emergency plan. (CFR: 43.5 / 45.11) | 2.6 | |
| | 2.4.24 | 2.4.24 Knowledge of loss of cooling water procedures. (CFR: 41.10 / 45.13) | 3.3 | |
| | 2.4.34 | 2.4.34 Knowledge of RO tasks performed outside the main control room during emergency operations including system geography and system implications. (CFR: 43.5 / 45.13) | 3.8 | |
| | | | | |
| | | | | |
| | | | Subtotal | 3 |
| Tier 3 Point Total | | | 0 | 0 |

| ES-401 | | Generic Knowledge and Abilities Outline (Tier 3) | | ES-401-3 Rev 9 | |
|--|-----------|--|-----------------|----------------|----------|
| Facility: | St. Lucie | Date of Exam: | 8/21/2004 | Level: | SRO |
| Category | K/A # | Topic | Imp. | # | |
| 1 Conduct of Operations | 2.1.33 | 2.1.33 Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications. (CFR: 43.2 / 43.3 / 45.3) | 3.9 | 1119 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | Subtotal | 1 | 1 |
| 1 Equipment Control | 2.2.5 | 2.2.5 Knowledge of the process for making changes in the facility as described in the safety analysis report. (CFR: 43.3 / 45.13) | 2.7 | 1120 | |
| | 2.2.33 | 2.2.33 Knowledge of control rod programming. (CFR: 43.6) | 2.9 | 1121 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | Subtotal | 2 | 2 |
| 3 Radiation Protection | 2.3.4 | 2.3.4 Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized. (CFR: 43.4 / 45.10) | 3.1 | 1122 | |
| | 2.3.2 | 2.3.2 Knowledge of facility ALARA program. (CFR: 41.12 / 43.4 / 45.9 / 45.10) IMPORTANCE RO 2.5 SRO 2.9 | 2.9 | 353.3 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | Subtotal | 2 | 2 |
| 4 Emergency Procedures and Plan | 2.4.39 | 2.4.39 Knowledge of the SRO's responsibilities in emergency plan implementation. (CFR: 45.11) | 3.1 | 1124 | |
| | 2.4.30 | 2.4.30 Knowledge of which events related to system operations/status should be reported to outside agencies. (CFR: 43.5 / 45.11) | 3.4 | 1123 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | Subtotal | 2 | 2 |
| Tier 3 Point Total | | | 7 | 7 | |

| ES-401 | | Generic Knowledge and Abilities Outline (Tier 3) | | | ES-401-3 Rev 9 | |
|--|-----------|--|-----------------|----------|----------------|--|
| Facility: | St. Lucie | Date of Exam: | 8/21/2004 | Level: | SRO | |
| Category | K/A # | Topic | Imp. | # | | |
| 1 Conduct of Operations | 2.1.33 | 2.1.33 Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications. (CFR: 43.2 / 43.3 / 45.3) | 3.9 | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | Subtotal | 1 | 0 | |
| 1 Equipment Control | 2.2.5 | 2.2.5 Knowledge of the process for making changes in the facility as described in the safety analysis report. (CFR: 43.3 / 45.13) | 2.7 | | | |
| | 2.2.23 | 2.2.33 Knowledge of control rod programming. (CFR: 43.6) | 2.9 | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | Subtotal | 2 | 0 | |
| 3 Radiation Protection | 2.3.4 | 2.3.4 Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized. (CFR: 43.4 / 45.10) | 3.1 | | | |
| | 2.3.7 | 2.3.2 Knowledge of facility ALARA program. (CFR: 41.12 / 43.4 / 45.9 / 45.10) | 2.9 | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | Subtotal | 2 | 0 | |
| 4 Emergency Procedures and Plan | 2.4.39 | 2.4.39 Knowledge of the SRO's responsibilities in emergency plan implementation. (CFR: 45.11) | 3.1 | | | |
| | 2.4.30 | 2.4.30 Knowledge of which events related to system operations/status should be reported to outside agencies. (CFR: 43.5 / 45.11) | 3.4 | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | Subtotal | 2 | | |
| Tier 3 Point Total | | | 7 | 0 | | |

401-4

| Tier and Group | Randomly Selected K/A | Reason for Rejection |
|----------------------------|--|--|
| Tier 1 Group 1 SRO Exam | 027G1.30 Pressurizer Pressure Control System Malfunction Ability to locate and operate components, including local controls. RO 3.9 SRO 3.4 (CFR: 41.7 / 45.7) | This K/A is inappropriate for the SRO exam. The RO K/A importance-to-safety rating is higher than the SRO rating. The K/A is not cross-referenced to 10CFR55.43. OK to shift K/As per NRC Chief Examiner Rick Baldwin Telcon 4/28 G2.2.22 Knowledge of limiting conditions for operations and safety limits. (CFR: 43.2 / 45.2) IMPORTANCE RO 3.4 SRO 4.1 |
| Tier 1 Group 1 SRO Exam | 015/17AA2.11 RCP Malfunction- Ability to determine and interpret the following as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow): When to jog RCPs during ICC 3.4* 3.8* | Jogging RCPs is done under Westinghouse EOPs - not CE EOPs. The original K/A does not apply to CE plants. Resampled to AA2.02 Abnormalities in RCP air vent flow paths and/or oil cooling system 2.8 3.0 (CFR: 43.5 / 45.13) |
| Tier 2 Group 1 RO Exam | 007K5.02 Pressurizer Relief/Quench Tank - Knowledge of the operational implications of the following concepts as the apply to PRTS: K5.02 Method of forming a steam bubble in the PZR 3.1 3.4 (CFR: 41.5 / 45.7) | The formation of a bubble in the PZR has no effect on the Quench Tank at St. Lucie. This K/A is not applicable. Received permission to shift K/As per Rick Baldwin TELCON 4/28 Randomly reselected A1.01 Maintaining quench tank water level within limits 2.9 3.1 |
| Tier 2 Group 2 RO Exam | 029K1.04 Containment Purge - Knowledge of the physical connections and/or cause effect relationships between the Containment Purge System and the following systems: K1.04 Purge system 3.0? 3.1? (CFR: 41.2 to 41.9 / 45.7 to 45.8) | This K/A is not applicable at St Lucie. The K/A asks the system interaction between the containment purge system and the purge system. There is no interaction between the containment purge system (accident system) and the containment air release system (normal air release) at St. Lucie. The only questions that could be asked would be regarding when it is appropriate to use each system. While this is important knowledge, it is difficult to craft a psychometrically valid question that would be adequately discriminatory. Obtained permission to randomly reselect a new K/A from the NRC Chief Examiner per telcon 4/28/04. New K/A is K1.02 - Knowledge of the physical connections and/or cause effect relationships between the Containment Purge System and the following systems: K1.02 Containment radiation monitor 3.3/ 3.6 |
| Tier 2 Group 2 SRO Exam | 045G2.1.33 Main Turbine Generator - Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications. (CFR: 43.2 / 43.3 / 45.3) IMPORTANCE RO 3.4 SRO 4.0 | There are no Tech Specs covering the Main Turbine - not applicable at St. Lucie. Randomly reselected K/A 045G2.4.5 Ability to perform without reference to procedures those actions that require immediate operation of system components and controls. (CFR: 41.10 / 43.2 / 45.6) IMPORTANCE RO 4.0 SRO 4.0 |

DENT

| Facility: ST. LUCIE | | DRAFT | | Date of Examination: AUG 2004 |
|--|---|--------------------------|----|--------------------------------------|
| Item | Task Description | Initials | | |
| | | a | b* | c# |
| 1. W R I T T E N | a. Verify that the outline(s) fit(s) the appropriate model per ES-401. | SR | WR | ✓ |
| | 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. | SR | WR | ✓ |
| | c. Assess whether the outline over-emphasizes any systems, evolutions, or generic topics. | SR | WR | ✓ |
| | d. Assess whether the justifications for deselected or rejected K/A statements are appropriate. | SR | WR | ✓ |
| 2. S I M | a. Using Form ES-301-5, verify that the proposed scenario sets cover the required number of normal evolutions, instrument and component failures, and major transients. | L | WR | XX |
| | 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; ensure 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 scenarios will not be repeated over successive on subsequent days. | L | WR | ✓ |
| | 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. | L | WR | ✓ |
| 3. W / T | a. Verify that: (1) the outline(s) contain(s) the required number of control room and in-plant tasks, (2) no more than 30% of the test material is repeated from the last NRC examination, (3) no tasks are duplicated from the applicants' audit test(s), and (4) no more than 80% of any operating test is taken directly from the licensee's exam banks. | L | WR | ✓ |
| | b. Verify that: (1) the tasks are distributed among the safety function groupings as specified in ES-301, (2) one task is conducted in a low-power or shutdown condition, (3) 40% - 6 (2 - 3 for SRO-U) of the tasks require the applicant to implement an alternate path procedure, (4) one in-plant task tests the applicant's response to an emergency or abnormal condition, and (5) the in-plant walk-through requires the applicant to enter the RCA. | L | WR | XX |
| | c. Verify that the required administrative topics are covered, with emphasis on performance-based activities. | L | WR | ✓ |
| | d. Determine if there are enough different outlines to test the projected number and mix of applicants and ensure that no items are duplicated on successive subsequent days. | L | WR | ✓ |
| 4. G E N E R A L | a. Assess whether plant-specific priorities (including PRA and IPE insights) are covered in the appropriate exam section. | L | WR | |
| | b. Assess whether the 10 CFR 55.41/43 and 55.45 sampling is appropriate. | L | WR | ✓ |
| | c. Ensure that K/A importance ratings (except for plant-specific priorities) are at least 2.5. | L | WR | ✓ |
| | d. Check for duplication and overlap among exam sections. | L | WR | ✓ |
| | e. Check the entire exam for balance of coverage. | L | WR | ✓ |
| | f. Assess whether the exam fits the appropriate job level (RO or SRO). | L | WR | ✓ |
| a. Author B. C. HAAGENSEN / <i>R. Haagen</i> | | Printed Name / Signature | | Date |
| b. Facility Reviewer (*) EDDYE L. ROBERTS / <i>Edward L. Roberts</i> | | | | 5/11/04 5-13-04 |
| c. NRC Chief Examiner (#) R. AIELLO / <i>R. Aiello</i> | | | | 5-14-04 |
| d. NRC Supervisor M. ERKITEI / <i>Michael E. Erktei</i> | | | | 05/24/04 5-25-04 |
| Note: * Not applicable for NRC-developed examinations. # Independent NRC reviewer initial items in Column "c;" chief examiner concurrence required. | | | | |

XX will correct on PIRAB outline