

Susquehanna Learning Center
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*Received
10/14/03*



October 9, 2003

Mr. John Caruso
USNRC Chief Examiner
USNRC Region 1
475 Allendale Road
King of Prussia, PA 19406-1415

Susquehanna Learning Center
Examination Outlines
PLA 005681 File A14-13D

Dear Mr. Caruso:

Enclosed for your review and approval is the outline for the PPL Susquehanna, LLC Initial Licensed Operator Written Examination scheduled for Monday, December 15, 2003. This outline is submitted in accordance with NUREG 1021, "Operator Licensing Examination Standards for Power Reactors" (Draft Revision 9). The following materials are enclosed:

- Form ES-201-2, Examination Outline Quality Checklist - Rev. 0 (Signed)
- Form ES-201-3, Examination Security Agreement (Copy)
- **SRO Written Outline**
 - Form ES-401-1, BWR Examination Outline - SRO - Rev. 0 (Five Pages)
 - Form ES-401-3, Generic Knowledge and Abilities Outline Tier 3-SRO - Rev. 0 (One Page)
- Form ES-401-4, Record of Rejected K/As - Rev. 0

The Written Exam Outline was compiled using the Random Selection Process described in ES-401, Attachment 1, Example Systematic Sampling Methodology and the K/A Elimination Guidance provided in ES-401, Attachment 2, K/A Elimination Guidance. Rejected K/As were documented on Form ES-401-4, Record of Rejected K/As.

The expected additions to the Exam Security Agreement are the Operation's Validation Team.

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We request these materials be withheld from public disclosure until after the completion of the exam. If you have any questions, please feel free to contact me at 570-542-3326 or Rich Brooks at 570-542-1891.

Sincerely,



Kenneth M. Roush
Manager-Nuclear Training

Response: No

Enclosures: Listed

cc: R. R. Boesch
Ops Letter File
Nuc Records-Site

rb for kr - exam outlines - pla 005681

KMR/RJB/vah

J. Caruso

Oct 14, 03

Review/Comments Susquehanna Written Retake Exam Dec 03

Question topics for #14 & 20 look like may be testing the same or similar areas.

Cautioned Rich Brooks that the following question topics need to be written appropriately at the SRO level (#'s 3, 4, 5, 7,9, 18, and 23).

Facility: **SUSQUEHANNA** Date of Exam **12/15/2003**

| 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* | TOTAL | |
| 1. Emergency & Abnormal Plant Evolutions | 1 | | | | | | | | | | | | | 20 | 0 | 0 | 3 | 5 | 8 |
| | 2 | | | | | | | | | | | | | 7 | 0 | 0 | 4 | 0 | 4 |
| | Tier Totals | | | | | | | | | | | | | 27 | 0 | 0 | 7 | 5 | 12 |
| 2. Plant Systems | 1 | | | | | | | | | | | | | 26 | 0 | 0 | 3 | 1 | 4 |
| | 2 | | | | | | | | | | | | | 12 | 0 | 0 | 1 | 1 | 2 |
| | Tier Totals | | | | | | | | | | | | | 38 | 0 | 0 | 4 | 2 | 6 |
| 3. Generic Knowledge and Abilities Categories | | | | | | | | | | | | | | 10 | 1 | 2 | 3 | 4 | 7 |
| | | | | | | | | | | | | | | 10 | 1 | 2 | 2 | 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 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 or evolution 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 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.

| E/APE # / Name / Safety Function | K 1 | K 2 | K 3 | A 1 | A 2 | G | K/A Topic(s) | IR | # |
|---|--------|--------|--------|--------|--------|---|--|-----|---|
| 295001 Partial or Complete Loss of Forced Core Flow Circulation / 1 & 4 (Q.1) | | | | | X | | AA2. Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION : AA2.01 Power/flow map (10CFR 55.43) | 3.8 | 1 |
| 295003 Partial or Complete Loss of AC / 6 (Q.2) | | | | | | X | 2.4.22 Knowledge of the bases for prioritizing safety functions during abnormal/emergency operations. (10CFR 55.43) | 4.0 | 1 |
| 295004 Partial or Total Loss of DC Pwr / 6 (Q.3) | | | | | | X | 2.4.10 Knowledge of annunciator response procedures. (10CFR 55.43) | 3.1 | 1 |
| 295006 SCRAM / 1 (Q.4) | | | | | | X | 2.1.9 Ability to direct personnel activities inside the control room. (10CFR 55.43) | 4.0 | 1 |
| 295016 Control Room Abandonment / 7 (Q.5) | | | | | | X | 2.1.30 Ability to locate and operate components / including local controls. (10CFR 55.43) | 3.4 | 1 |
| 295018 Partial or Total Loss of CCW / 8 (Q.6) | | | | | X | | AA2. Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER : AA2.03 Cause for partial or complete loss (10CFR 55.43) | 3.5 | 1 |
| 295037 SCRAM Condition Present and Power Above APRM Downscale or Unknown / 1 (Q.7) | | | | | X | | EA2. Ability to determine and/or interpret the following as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN : EA2.03 SBLC tank level (10CFR 55.43) | 4.4 | 1 |
| 600000 Plant Fire On Site / 8 (Q.8) | | | | | | X | 2.1.10 Knowledge of conditions and limitations in the facility license. (10CFR 55.43) | 3.9 | 1 |
| K/A Category Totals: | 0 | 0 | 0 | 0 | 3 | 5 | Group Point Total: | | 8 |

| E/APE # / Name / Safety Function | K 1 | K 2 | K 3 | A 1 | A 2 | G | K/A Topic(s) | IR | # |
|---|--------|--------|--------|--------|--------|---|---|-----|---|
| 295013 High Suppression Pool Temp. / 5 (Q.9) | | | | | X | | AA2. Ability to determine and/or interpret the following as they apply to HIGH SUPPRESSION POOL TEMPERATURE: AA2.02 Localized heating/stratification. (10CFR 55.43) | 3.5 | 1 |
| 295017 High Off-site Release Rate / 9 (Q.10) | | | | | X | | AA2. Ability to determine and/or interpret the following as they apply to HIGH OFF-SITE RELEASE RATE : AA2.04 †Source of off-site release (10CFR 55.43) | 4.3 | 1 |
| 295029 High Suppression Pool Water Level / 5 (Q.11) | | | | | X | | EA2. Ability to determine and/or interpret the following as they apply to HIGH SUPPRESSION POOL WATER LEVEL : EA2.01 Suppression pool water level (10CFR 55.43) | 3.9 | 1 |
| 295036 Secondary Containment High Sump/Area Water Level / 5 (Q.12) | | | | | X | | EA2. Ability to determine and/or interpret the following as they apply to SECONDARY CONTAINMENT HIGH SUMP/AREA WATER LEVEL : EA2.01 Operability of components within the affected area. (10CFR 55.43) | 3.2 | 1 |
| K/A Category Point Totals: | 0 | 0 | 0 | 0 | 4 | 0 | Group Point Total: | | 4 |

| System # | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A 1 | A 2 | A 3 | A 4 | G | K/A Topic(s) | IR | # |
|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|---|-----|---|
| 206000 HPCI (Q.13) | | | | | | | | X | | | | A2. Ability to (a) predict the impacts of the following on the HIGH PRESSURE COOLANT INJECTION SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: A2.02 Valve closures: BWR-2,3,4 (10CFR 55.43) | 3.5 | 1 |
| 259002 Reactor Water Level Control (Q.14) | | | | | | | | | | | X | 2.2.9 Knowledge of the process for determining if the proposed change / test or experiment increases the probability of occurrence or consequences of an accident during the change / test or experiment. (10CFR 55.43) | 3.3 | 1 |
| 262001 AC Electrical Distribution (Q.15) | | | | | | | | X | | | | A2. Ability to (a) predict the impacts of the following on the A.C. ELECTRICAL DISTRIBUTION ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: A2.02 Loss of coolant (10CFR 55.43) | 3.9 | 1 |
| 262002 UPS (AC/DC) (Q.16) | | | | | | | | X | | | | A2. Ability to (a) predict the impacts of the following on the UNINTERRUPTABLE POWER SUPPLY (A.C./D.C.) ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: A2.01 Under voltage (10CFR 55.43) | 2.8 | 1 |
| K/A Category Point Totals: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | Group Point Total: | | 4 |

| ES-401 | | BWR Examination Outline Plant Systems - Tier 2/Group 2 SRO | | | | | | | | | | Form ES-401-1 | | |
|---|--------|---|--------|--------|--------|--------|--------|--------|--------|--------|---|--|-----|---|
| System # | K 1 | K 2 | K 3 | K 4 | K 5 | K 6 | A 1 | A 2 | A 3 | A 4 | G | K/A Topic(s) | IR | # |
| 201001 CRD Hydraulic (Q.17) | | | | | | | | X | | | | A2. Ability to (a) predict the impacts of the following on the CONTROL ROD DRIVE HYDRAULIC SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: A2.03 Power supply failures (10CFR 55.43) | 3.1 | 1 |
| 230000 RHR/LPCI: Torus/Pool Spray Mode (Q.18) | | | | | | | | | | | X | 2.1.20 Ability to execute procedure steps. (10CFR 55.43) | 4.2 | 1 |
| K/A Category Point Totals: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | Group Point Total: | | 2 |

Facility SUSQUEHANNA

Date of Exam 12/15/2003

| Category | K/A# | Topic | SRO Only | | |
|--|------------------|--|----------|-----|---|
| | | | IR | # | |
| 1. Conduct of Operations | 2.1.12 (Q.19) | Ability to apply technical specifications for a system. (10CFR 55.43) | | 4.0 | 1 |
| | 2.1 | | | | |
| | 2.1 | | | | |
| | 2.1 | | | | |
| Subtotal | | | | | 1 |
| 2. Equipment Control | 2.2.10 (Q.20) | Knowledge of the process for determining if the margin of safety / as defined in the basis of any technical specification is reduced by a proposed change / test or experiment. (10CFR 55.43) | | 3.3 | 1 |
| | 2.2.26 (Q.21) | Knowledge of refueling administrative requirements. (10CFR 55.43) | | 3.7 | 1 |
| | 2.2 | | | | |
| | 2.2 | | | | |
| Subtotal | | | | | 2 |
| 3. Radiation Control | 2.3.10 (Q.22) | Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure. (10CFR 55.43) | | 3.3 | 1 |
| | 2.3.6 (Q.23) | Knowledge of the requirements for reviewing and approving release permits. (10CFR 55.43) | | 3.1 | 1 |
| | 2.3 | | | | |
| | 2.3 | | | | |
| Subtotal | | | | | 2 |
| 4. Emergency Procedures/ Plan | 2.4.44 (Q.24) | Knowledge of emergency plan protective action recommendations. (10CFR 55.43) | | 4.0 | 1 |
| | 2.4.20 (Q.25) | Knowledge of operational implications of EOP warnings / cautions / and notes. (10CFR 55.43) | | 4.0 | 1 |
| | 2.4 | | | | |
| Subtotal | | | | | 2 |
| Tier 3 Point Total | | | | | 7 |

| Tier / Group | Randomly Selected K/A | Reason for Rejection |
|------------------------------------|-----------------------|--|
| N/A | N/A | As per letter PLA005439 PLA14-13 from Jeff Helsel (PPL) to Alan Blamey (NRC) dated Feb. 4 th 2002 all K/As that are not applicable to SSES design were suppressed. A copy of the letter and the specific K/As involved is available upon request. |
| All Tiers and Groups except Tier 3 | N/A | Since this is a SRO only exam, only A2, AA2, EA2 and G K/As were used in the selection process. A2, AA2, EA2 and G K/As were used as these are the only K/As that have 10CFR 55.43 direct connections. |
| 1/1 | 295001 AA2.5 | No SRO specific task related to this K/A at Susquehanna |
| 1/1 | 295004 2.3 (all) | Difficult to construct a psychometrically sound discriminatory SRO level question for Partial or Total loss of DC that would match any Radiation Control generic Knowledge or Ability. |
| 1/1 | 295004 2.4.7 | Loss of DC is not an EOP |
| 1/1 | 295004 2.4.18 | Loss of DC is not an EOP |
| 1/1 | 295004 2.4.1 | Loss of DC is not an EOP |
| 1/1 | 295004 2.4.16 | Loss of DC is not an EOP |
| 1/1 | 295006 2.1.15 | No Standing night orders relative to SCRAM |
| 2/1 | 206000 A2.4 | HPCI system is a DC system, AC failures will have minimal impact, thereby making it difficult to construct a psychometrically sound discriminatory SRO level question. |
| 3 | 2.3.5 | Low discriminatory value; all personnel qualified to enter the RCA should possess this knowledge. |
| 3 | 2.4.1 | Low discriminatory value; ROs and SROs alike need to know these EOP steps from memory. |
| 3 | 2.4.10 | Too much emphasis on annunciators for a short 25 question SRO ONLY examination. K/A has been selected as a generic K/A for system 295004. (See question #3 of the exam outline in Tier 1 Group 1). |
| | | |
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