

Facility: **Watts Bar**Date of Examination: October 2011Examination Level: RO ☒ SRO ☐

Operating Test Number: 2

Administrative Topic (See Note)	Type Code*	Describe activity to be performed
Conduct of Operations	M,R	A.1-1 Determine License Status. <i>2.1.1 Knowledge of conduct of operations requirements 3.8 / 4.2 41.10 / 45.13</i>
Conduct of Operations	M,R	A.1-2 RCS Deboration Calculation. <i>2.1.25 Ability to interpret reference materials, such as graphs, curves, tables, etc. 3.9 / 4.2 41.10 / 45.12 /43.5</i>
Equipment Control	M,R	A.2 Hand Calculation of Reactor Coolant System Water Inventory Balance. <i>2.2.12 Knowledge of surveillance procedures. 3.7/4.1 41.10/45.13</i>
Radiation Control	M,R	A.3 Determine Potential Dose During Valve Alignment. <i>2.3.4 Knowledge of radiation exposure limits under normal or emergency conditions. 3.2/3.7 41.12 / 43.4 / 45.10</i>
Emergency Procedures / Plan	N/A	N/A

NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.

* Type Codes & Criteria:

- (C)ontrol room, (S)imulator, or Class(R)oom
- (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes)
- (N)ew or (M)odified from bank (≥ 1)
- (P)revious 2 exams (≤ 1 ; randomly selected)

RO Admin JPM Summary

- A.1-1 The applicant is provided with historical data for four operators and must determine each operator's license status. The applicant determines that Operator A, B and D do NOT meet the criteria for assuming shift.
- A.1-2 Applicant determines that it will take 229.5 minutes to reduce RCS boron concentration from 52 ppm to 38 ppm after performing SOI-62.04, "CVCS Purification System," Appendix B, "RCS Deboration Calculation."
- A.2 The applicant performs 1-SI-68-32, "Reactor Coolant System Water Inventory Balance," Appendix A, "Manual Performance of RCS Water Inventory Balance," using the data provided in the Applicant Data Sheets. Based on the results of the calculation, the applicant determines that the UNIDENTIFIED leakage limits have been exceeded.
- A.3 The applicant determines total dose which an individual would receive while aligning 1-FCV-63-11 to be 360 - 367 mrem. When added to the total dose received for the year, the applicant determines that the administrative dose limit (1000 mrem) will be exceeded.
- A.4 N/A

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Conduct of Operations	M,R	A.1-2 RCS Deboration Calculation. <i>2.1.25 Ability to interpret reference materials, such as graphs, curves, tables, etc. 3.9 / 4.2 41.10 / 45.12 / 43.5</i>
Equipment Control	N,R	A.2 Independent Verification of 1-SI-68-32 Calculation. <i>2.2.12 Knowledge of surveillance procedures. 3.7/4.1 41.10 / 45.13</i>
Radiation Control	M,R	A.3 Determine Potential Dose During Valve Alignment. <i>2.3.4 Knowledge of radiation exposure limits under normal or emergency conditions. 3.2/3.7 41.12 / 43.4 / 45.10</i>
Emergency Procedures / Plan	M,R	A.4 Evaluate Changing Plant Conditions and Determine if REP Classification Upgrade is Required. <i>2.4.40 Knowledge of SRO responsibilities in emergency plan implementation. 2.7/4.5 41.10 / 43.5 / 45.11</i>
NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.		
* Type Codes & Criteria: (C)ontrol room, (S)imulator, or Class(R)oom (D)irect from bank (≤ 3 for ROs; ≤ 4 for SROs & RO retakes) (N)ew or (M)odified from bank (≥ 1) (P)revious 2 exams (≤ 1 ; randomly selected)		

SRO Admin JPM Summary

- A.1-1 The applicant is provided with historical data for four operators and must determine each operator's license status. The applicant determines that Operator A, B and D do NOT meet the criteria for assuming shift.
- A.1-2 Applicant determines that it will take 229.5 minutes to reduce RCS boron concentration from 52 ppm to 38 ppm after performing SOI-62.04, "CVCS Purification System," Appendix B, "RCS Deboronation Calculation."
- A.2 The applicant performs an Independent Verification of 1-SI-68-32, "Reactor Coolant System Water Inventory Balance," Appendix A, "Manual Performance of RCS Water Inventory Balance," using the data provided. The applicant evaluates results of the calculation and enters Technical Specification LCO 3.4.13, RCS Operational LEAKAGE, Condition A.
- A.3 The applicant determines total dose which an individual would receive while aligning 1-FCV-63-11 to be 360 - 367 mrem. When added to the total dose received for the year, the applicant determines that the administrative dose limit (1000 mrem) will be exceeded.
- A.4 The applicant determines that an upgrade from an ALERT to a GENERAL EMERGENCY is required. The applicant prepares forms for emergency notification. The applicant evaluates conditions and initiates Protective Action Recommendations, Recommendation 2.

DRAFT

ES-301

Control Room/In-Plant Systems Outline

Form ES-301-2

Facility: **Watts Bar**Date of Examination: **October 2011**Exam Level: RO ☒ SRO-I ☒ SRO-U ☐Operating Test Number: **2**Control Room Systems[®] (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)

System / JPM Title	Type Code*	Safety Function
a. Retrieve a Dropped Rod. 001 A2.03, 3.5/4.2 CFR 41.5/43.5/45.3/45.13	A, D	1
b. Place Letdown in Service per AOI-6. 004 A4.06 3.6/3.1 CFR 41.7 / 45.5 to 45.8	A, M	2
c. Align an RHR train for Hot Leg Recirculation. 006 A4.04 3.7 / 3.6 CFR 41.7/45.5 to 45.8	A, D	3
d. Start RCP 1. 003 A1.02 2.9/2.9 CFR 41.5 / 45.5	A, M, L	4P
e. Align Control Rod Drive Mechanism Coolers. 022 A4.01 3.6 / 3.6 CFR	C or S, D	5
f. Reinstate Source Range following a Reactor Trip. 015 A4.01, 3.6 / 3.6 CFR 41.7 / 45.5 to 45.8	A, D	7
g. Purge Lower Containment. 029 A2.03 2.7/3.1 CFR 41.5/43.5/45.3/45.13 CFR	C or S, M	8
h. Place SBMFP in service (RO ONLY). 059 A4.03 2.9 / 2.9 41.7 / 45.5 to 45.8	D, M	4S

In-Plant Systems[®] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)

i. Bypass 1-FCV-62-89 Charging Flow for Local Control (Aux Bldg). 004 A4.08 3.8/3.4 CFR 41.7/45.5 to 45.8	D, E, R	2
j. Rolling 1B-B Diesel Generator To Check For Water In Cylinders per SOI-82.02 (DG Bldg). 064 A2.15 2.6/3.1 CFR 41.5/43.5/45.3/45.13	D, EN	6
k. Swap Seal Injection Filters (Aux Bldg). 004 A4.11 3.3/3.2 CFR 41.7/45.5 to 45.8	D, R	4P

@ All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions; all 5 SRO-U systems must serve different safety functions; in-plant systems and functions may overlap those tested in the control room.

*Type Codes	Criteria for RO / SRO-I / SRO-U
(A)lternate path	4-6 / 4-6 / 2-3
(C)ontrol room	
(D)irect from bank	≤ 9 / ≤ 8 / ≤ 4
(E)mergency or abnormal in-plant	≥ 1 / ≥ 1 / ≥ 1
(EN)gineered safety feature	- / - / ≥ 1
(L)ow-Power / Shutdown	≥ 1 / ≥ 1 / ≥ 1
(N)ew or (M)odified from bank including 1(A)	≥ 2 / ≥ 2 / ≥ 1
(P)revious 2 exams	≤ 3 / ≤ 3 / ≤ 2 (randomly selected)
(R)CA	≥ 1 / ≥ 1 / ≥ 1
(S)imulator	

Summary

- B.1.a This is an ALTERNATE PATH JPM. The applicant performs actions of AOI-2, "Malfunction of the Reactor Control System," Section 3.3, "Dropped RCCA." to retrieve shutdown bank rod C-5. The applicant diagnoses shutdown bank D dropping, and performs the IMMEDIATE OPERATOR ACTIONS of AOI-2, "Malfunction of the Reactor Control System," Section 3.3 "Dropped RCCA."
- B.1.b This is an ALTERNATE PATH JPM. During the performance of AOI-6, "Small Reactor Coolant System Leak," Step 16, the applicant determines that pressurizer level is rising and enters Step 16 RESPONSE NOT OBTAINED. After entering the RNO, the applicant places excess letdown in service and does NOT exceed 200°F as indicated on 1-TI-62-58, EXCESS LTDN TEMP.
- B.1.c This is an ALTERNATE PATH JPM. The applicant attempts to align RHR Train "A" to supply hot leg recirculation using ES-1.4, "Transfer to Hot Leg Recirculation." When the attempt is unsuccessful due to a valve failure, the applicant places RHR Train "B" in hot leg recirculation.
- B.1.d This is an ALTERNATE PATH JPM. The applicant performs the actions of SOI-68.02, "Reactor Coolant Pumps," to start RCP #1. After RCP #1 is started, the applicant evaluates RCP #1 bearing temperatures, determines that temperature is rising, and stops RCP #1 due to high bearing temperature.
- B.1.e The applicant places CRDM coolers A-A and B-B in service and shuts down CRDM coolers C-A and D-B and using SOI-30.03, "Containment HVAC and Pressure Control."
- B.1.f This is an ALTERNATE PATH JPM. The applicant determines that the Source Range detectors did NOT re-energize as expected and takes the actions of ES-0.1, "Reactor Trip Response," to manually reenergize and align the Source Range per Step 18 RESPONSE NOT OBTAINED.
- B.1.g The applicant places Lower Containment Purge in service using SOI-30.02, "Containment Purge System."
- B.1.h The applicant starts the Standby Main Feedwater pump in parallel with the Main Feedwater Pumps and adjusts Main Feedwater Pump pressure to load the Standby Main Feedwater pump to provide 3500 to 4000 gpm of flow. Task is performed using SOI-2&3.01, "Condensate and Feedwater Systems," Section 8.9, "Replacing Turbine Driven MFP with SMFP, or Periodic Operation of SMFP."
- B.1.i The applicant locally bypasses 1-FCV-62-89, Charging Flow Control Valve using SOI-62.01, "CVCS-Charging and Letdown," Section 8.6, "Bypassing 1-FCV-62-89, CHARGING FLOW CONT for Local Control," and establishes normal RCP Seal injection Flow.
- B.1.j The applicant performs SOI-82.02, "Diesel Generator 1B-B," Section 8.2, "Rolling" DG to Check for Water in Cylinders," in preparation for Surveillance testing.
- B.1.k The applicant performs SOI-62.01, "CVCS-Charging and Letdown," Section 8.9.2, "Replacing Filter B with Filter A."