Facility: Wolf Creek Date of Examination: January 2012

Examination Level: RO ☐ SRO ☒ Operating Test Number: _____

Administrative Topic (see Note)	Type Code*	Describe activity to be performed
A1 Conduct of Operations	D, R	Review completed boration requirement calculation for a downpower evolution. 2.1.37 Knowledge of procedures, guidelines, or limitations associated with reactivity management (CFR 41.1 / 43.6 / 45.6) (SRO: 4.6)
A2 Conduct of Operations	D, R	Using a supplied data (STS SF-002, Core Axial Flux Difference), complete and evaluate the acceptance criteria. 2.1.20 Ability to interpret and execute procedure step. (CFR 41.10 / 43.5 / 45.12) (SRO: 4.6) 2.1.43 Ability to use procedures to determine the effects on reactivity of plant changes, such as reactor coolant system temperature, secondary plant, fuel depletion, etc. (CFR 41.10 / 43.6 / 45.6) (SRO: 4.3)
A3 Equipment Control	N, R	Evaluate plant conditions and determine if a mode change can occur. 2.2.35 Ability to determine Technical Specification Mode of Operation (CFR: 41.7 / 41.10 / 43.2 / 45.13) (SRO: 4.5) 2.2.40 Ability to apply Technical Specifications for a system. (CFR: 41.10 / 43.2 / 43.5 / 45.3) (SRO: 4.7)
A4 Radiation Control	N, R	Evaluate an Emergency Authorization Exposure (EPF 06-013-02) for correctness and approval. 2.3.4 Knowledge of radiation exposure limits under normal or emergency conditions. (CFR 41.12 / 43.4 / 45.10) (SRO: 3.7)
A5 Emergency Procedures/Plan	N, S	In the simulator setting, perform an Emergency Plan classification, completing an Emergency Notification form (EPF 06-007-01) within fifteen minutes. Time Critical 2.4.41 Knowledge of the emergency action level thresholds and classification. (CFR 41.10 / 43.5 / 45.11) (SRO: 4.6)

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)

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Control Room Systems[@] (8 for RO); (7 for SRO-I); (2 or 3 for SRO-U, including 1 ESF)

Alternate Success Path JPM's are Bolded.

System / JPM Title	Type Code*	Safety Function
S1 004 CVCS: Perform manual makeup to the Volume Control Tank A4 Ability to manually operate and/or monitor in the Control Room: (CFR 41.7 / 45.5 to 45.8) A4.12 Boration/Dilution batch control (SRO: 3.3) A4.13 VCT level control and pressure control (SRO: 2.9) A4.15 Boron concentration (SRO: 3.7)	D, S	2
S2 010 Pressurizer Pressure Control System (PZR PCS): Depressurize the RCS to 1920 psig A1 Ability to predict and /or monitor changes in parameters (to prevent exceeding design limits) associated with operating the PZR PCS controls including: (CFR 41.5 / 45.5) A1.07 RCS pressure (SRO: 3.7) A4 Ability to manually operate and / or monitor in the Control Room: (CFR 41.7 / 45.5 to 45.8) A4.01 PZR spray valve (SRO: 3.5) PSA – Top Risk Significant System by PSA (BB – Reactor Coolant System)	N, S, L	3
S3 041 Steam Dump System and Turbine Bypass Control (SDS): move steam load from Turbine to steam dumps A3 Ability to monitor automatic operation of the SDS, including: (CFR 41.7 / 45.5): A3.02 RCS pressure, RCS temperature, and reactor power (SRO: 3.4) A3.03 Steam flow (SRO: 2.8) A4 Ability to manually operate and/ or monitor in the Control Room: (CFR 41.7 / 45.5 to 45.8) A4.08 Steam dump valves (SRO: 3.1)	N, S	4S

S4 003 Reactor Coolant Pumps (RCP): RCP seal injection high: seal injection too high when at 100%, must trip reactor (first) and then trip RCP and close valve etc. **A2 Ability to (a) predict the impacts of the following malfunctions or operations on the RCPs; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: (CFR 41.5 / 43.5 / 45.3 / 45.13)** **A2.01 Problems with RCP seals, especially rates of seal leak-off (SRO: 3.9)** **A2.02 Conditions which exist for an abnormal shutdown of an RCP in comparison to a normal shutdown of an RCP (SRO: 3.9)** PSA – Top Risk Significant System by PSA (BB – Reactor Coolant System)	**N, A, S**	**4P**
S5 103 Containment System: Phase A not completed – must "make it so" **A2 Ability to (a) predict the impacts of the following malfunctions or operations on the Containment Systems; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: (CFR 41.5 / 43.5 / 45.3 / 45.13)** **A2.03 Phase A and Phase B isolation (SRO: 3.8)** PSA – Top Risk Significant System by PSA (SA – Engineered Safeguards Features Actuation System)	**M, A, S, L**	**5**
S6 062 A.C. Electrical Distribution: align alternate power to bus **A2 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: (CFR 41.5 / 43.5 / 45.3 / 45.13)** **A2.05 Methods for energizing a dead bus (SRO: 3.3)** **055 Loss of Offsite and Onsite Power (Station Blackout)** **EA2 Ability to determine or interpret the following as they apply to a Station Blackout (CFR 43.5 / 45.13)** **EA2.03 Actions necessary to restore power (SRO: 4.7)** **PSA – Station Blackout – Core Damage Frequency by Initiating Event & Event tree**	**M, A, S, L**	**6**

S7 015 Nuclear Instrumentation System (NIS): IR under compensation, correct energize SR NI's **K6. Knowledge of the effect of a loss or malfunction on the following will have on the NIS: (CFR 41.7 / 45.7)** **K6.02 Discriminator / compensation circuits (SRO: 2.9)** **A2 Ability to (a) predict the impacts of the following malfunctions or operations on the NIS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: (CFR 41.5 / 43.5 / 45.3 / 45.13)** **A2.02 Faulty or erratic operation of detectors or compensating components (SRO: 3.5)** **LER 2009-011, Intermediate Range detector NI36 inoperable**	**N, A, L, S**	**7**
h. NA		
In-Plant Systems[@] (3 for RO); (3 for SRO-I); (3 or 2 for SRO-U)		
P1 001 Control Rod Drive System (CRDM): Start a rod drive motor generator set 2.2.1 Ability to perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity. (CFR 41.5 / 41.10 / 43.5 / 45.1) (SRO: 4.4) LER 2003-001, Manipulation of component outside of procedural guidance causes reactor trip	D, R	1
P2 061 Auxiliary Feedwater System (AFW): align AFW alternate suction from fire protection standpipe A2 Ability to (a) predict the impacts of the following malfunctions or operations on the AFW; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: (CFR 41.5 / 43.5 / 45.3 / 45.13) A2.04 Pump failure or improper operation (SRO: 3.8) PSA – Top Risk Significant System by PSA (AL – Auxiliary Feedwater System)	D, L, E	4S

P3 033 Spent Fuel Pool Cooling System (SFPCS) **A2 Ability to (a) predict the impacts of the following malfunctions or operations on the Spent Fuel Pool Cooling System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: (CFR 41.5 / 43.5 / 45.3 / 45.13)** **A2.03 Abnormal spent fuel pool water level or loss of water level (SRO: 3.5**	**N, A, R**	**8**

@ 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 (control room system)
(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	