Form 3.2-2 Control Room/In-Plant Systems Outline

Facility: Davis Besse Date of Examination: January 2024
Operating Test Number: 2024301

Exam Level: ☒ RO ☐ SRO-I ☐ SRO-U

System/JPM Title	Type Code	Safety Function
Control Room Systems		
a. Deborate the RCS using Deborating Ion exchangers ALT path boron conc does not respond predictably (JPM NEW) **004A2.30 / 3.5, Ability to (a) predict the impacts of the following on the Chemical and Volume Control System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operations: Reduction of boron concentration in the letdown flow and its effects on reactor operation**	A, N, S	1
b. Manually actuate SFAS levels 1 and 2 (JPM 245) **013A4.03 / 4.4, Ability to manually operate and/or monitor in the control room: ESFAS initiation**	D, EN, S	2
c. Perform Boron Equalization between the Pressurizer and the Reactor Coolant System ALT (JPM 275) **010A4.01 / 3.8, Ability to manually operate and/or monitor in the control room: PZR spray valve**	A, D, P, S	3
d. Initiate flow from BWST via HPI upon a Loss of Decay Heat Removal pump ALT (JPM 187) **005K1.13 / 4.2, Knowledge of the physical connections and/or cause and effect relationships between the Residual Heat Removal System and the following systems: SIS/HPI**	A, D, EN, L, S	4P
e. Rapid cooldown of the RCS via TBVs and AVVs ALT (JPM 284) **041K3.01 / 3.7, Knowledge of the effect that a loss or malfunction of the Steam Dump System and Turbine Bypass Control will have on the following systems or system parameters: S/G**	A, D, L, S	4S
f. Manually start both CSS trains after SFAS Level 4 signal (JPM MODIFIED) **026A4.01 / 3.9, Ability to manually operate and/or monitor in the control room: CSS controls**	EN, L, M, S	5

g. Restore Power to D2 from EDG 2 following a LOOP and SBODG Failure ALT (JPM 163) **062K6.13 / 3.4, Knowledge of the effect of the following plant conditions, system malfunctions, or component malfunctions on the AC Electrical Distribution System: Onsite standby power systems**	A, D, L, S	6
h. Perform the supplementary actions for the BOP RO for a serious CR Fire prior to leaving the CR (JPM 80). **068AA1.06 / 3.7, Ability to operate and/or monitor the following as they apply to Control Room Evacuation: Charging pump**	D, S	8
In-Plant Systems		
i. Perform in progress WGDT 3 release (JPM 223) **071A1.08 / 2.7, Ability to predict and/or monitor changes in parameters associated with operation of the Waste Gas Disposal System, including: Waste gas tank discharge rate and/or volume**	D, R	9
j. Reset overspeed trip mechanism and trip throttle valve for AFPT 1 (JPM 75) **061K4.07 / 3.7, Knowledge of the Auxiliary/Emergency Feedwater System design features and/or interlocks that provide for the following: AFW pump trip**	D, E	4s
k. Lineup Circulating Water to supply Service Water Loop 2 Primary Loads **076K1.14 / 2.7, Knowledge of the physical connections and/or cause and effect relationships between the Service Water System and the following systems: CWS**	D	8

1. Determine the number of control room system and in-plant system job performance measures (JPMs) to develop using the following table:

License Level	Control Room	In-Plant	Total
Reactor Operator (RO)	8	3	11
Senior Reactor Operator-Instant (SRO-I)	7	3	10
Senior Reactor Operator-Upgrade (SRO-U)	2 or 3	3 or 2	5

2. Select safety functions and systems for each JPM as follows:

   Refer to Section 1.9 of the applicable knowledge and abilities (K/A) catalog for the plant systems organized by safety function. For pressurized-water reactor operating tests, the primary and secondary systems listed under Safety Function 4, "Heat Removal from Reactor Core," in Section 1.9 of the applicable K/A catalog, may be treated as separate safety functions (i.e., two systems, one primary and one secondary, may be selected from Safety Function 4). From the safety function groupings identified in the K/A catalog, select the appropriate number of plant systems by safety functions to be evaluated based on the applicant's license level (see the table in step 1).

   For RO/SRO-I applicants: Each of the control room system JPMs and, separately, each of the in-plant system JPMs must evaluate a different safety function, and the same system or evolution cannot be used to evaluate more than one safety function in each location. One of the control room system JPMs must be an engineered safety feature.

   For SRO-U applicants: Evaluate SRO-U applicants on five different safety functions. One of the control room system JPMs must be an engineered safety feature, and the same system or evolution cannot be used to evaluate more than one safety function.

3. Select a task for each JPM that supports, either directly or indirectly and in a meaningful way, the successful fulfillment of the associated safety function. Select the task from the applicable K/A catalog (K/As for plant systems or emergency and abnormal plant evolutions) or the facility licensee's site-specific task list. If this task has an associated K/A, the K/A should have an importance rating of at least 2.5 in the RO column. K/As that have importance ratings of less than 2.5 may be used if justified based on plant priorities; inform the NRC chief examiner if selecting K/As with an importance rating less than 2.5. The selected tasks must be different from the events and evolutions conducted during the simulator operating test and tasks tested on the written examination. A task that is similar to a simulator scenario event may be acceptable if the actions required to complete the task are significantly different from those required in response to the scenario event.

   Apply the following specific task selection criteria:

- At least one of the tasks shall be related to a shutdown or low-power condition.
- Four to six of the tasks for RO and SRO-I applicants shall require execution of alternative paths within the facility licensee's operating procedures. Two to three of the tasks for SRO-U applicants shall require execution of alternative paths within the facility licensee's operating procedures.
- At least one alternate path JPM must be new or modified from the bank.
- At least one of the tasks conducted in the plant shall evaluate the applicant's ability to implement actions required during an emergency or abnormal condition.
- At least one of the tasks conducted in the plant shall require the applicant to enter the radiologically controlled area. This provides an excellent opportunity for the applicant to discuss or demonstrate radiation control administrative subjects.

If it is not possible to develop or locate a suitable task for a selected system, return to step 2 and select a different system.

4. For each JPM, specify the codes for type, source, and location:

Code	License Level Criteria		
	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 (for control room system)	≥ 1	≥ 1	≥ 1
(L)ow power/shutdown	≥ 1	≥ 1	≥ 1
(N)ew or (M)odified from bank (must apply to at least one alternate path JPM)	≥ 2	≥ 2	≥ 1
(P)revious two exams (randomly selected)	≤ 3	≤ 3	≤ 2
(R)adiologically controlled area	≥ 1	≥ 1	≥ 1
(S)imulator			

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System/JPM Title	Type Code	Safety Function
Control Room Systems		
a. Deborate the RCS using Deborating Ion exchangers ALT path boron conc does not respond predictably (JPM NEW) **004A2.30 / 3.5, Ability to (a) predict the impacts of the following on the Chemical and Volume Control System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operations: Reduction of boron concentration in the letdown flow and its effects on reactor operation**	A, N, S	1
b. Manually actuate SFAS levels 1 and 2 (JPM 245) **013A4.03 / 4.4, Ability to manually operate and/or monitor in the control room: ESFAS initiation**	D, EN, S	2
c. Perform Boron Equalization between the Pressurizer and the Reactor Coolant System ALT (JPM 275) **010A4.01 / 3.8, Ability to manually operate and/or monitor in the control room: PZR spray valve**	A, D, P, S	3
e. Rapid cooldown of the RCS via TBVs and AVVs ALT (JPM 284) **041K3.01 / 3.7, Knowledge of the effect that a loss or malfunction of the Steam Dump System and Turbine Bypass Control will have on the following systems or system parameters: S/G**	A, D, L, S	4S
f. Manually start both CSS trains after SFAS Level 4 signal (JPM MODIFIED) **026A4.01 / 3.9, Ability to manually operate and/or monitor in the control room: CSS controls**	EN, L, M, S	5
g. Restore Power to D2 from EDG 2 following a LOOP and SBODG Failure ALT (JPM 163) **062K6.13 / 3.4, Knowledge of the effect of the following plant conditions, system malfunctions, or component malfunctions on the AC Electrical Distribution System: Onsite standby power systems**	A, D, L, S	6

h. Perform the supplementary actions for the BOP RO for a serious CR Fire prior to leaving the CR (JPM 80). **068AA1.06 / 3.7, Ability to operate and/or monitor the following as they apply to Control Room Evacuation: Charging pump**	D, S	8
In-Plant Systems		
i. Perform in progress WGDT 3 release (JPM 223) **071A1.08 / 2.7, Ability to predict and/or monitor changes in parameters associated with operation of the Waste Gas Disposal System, including: Waste gas tank discharge rate and/or volume**	D, R	9
j. Reset overspeed trip mechanism and trip throttle valve for AFPT 1 (JPM 75) **061K4.07 / 3.7, Knowledge of the Auxiliary/Emergency Feedwater System design features and/or interlocks that provide for the following: AFW pump trip**	D, E	4s
k. Lineup Circulating Water to supply Service Water Loop 2 Primary Loads **076K1.14 / 2.7, Knowledge of the physical connections and/or cause and effect relationships between the Service Water System and the following systems: CWS**	D	8

1. Determine the number of control room system and in-plant system job performance measures (JPMs) to develop using the following table:

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Senior Reactor Operator-Instant (SRO-I)	7	3	10
Senior Reactor Operator-Upgrade (SRO-U)	2 or 3	3 or 2	5

2. Select safety functions and systems for each JPM as follows:

   Refer to Section 1.9 of the applicable knowledge and abilities (K/A) catalog for the plant systems organized by safety function. For pressurized-water reactor operating tests, the primary and secondary systems listed under Safety Function 4, "Heat Removal from Reactor Core," in Section 1.9 of the applicable K/A catalog, may be treated as separate safety functions (i.e., two systems, one primary and one secondary, may be selected from Safety Function 4). From the safety function groupings identified in the K/A catalog, select the appropriate number of plant systems by safety functions to be evaluated based on the applicant's license level (see the table in step 1).

   For RO/SRO-I applicants: Each of the control room system JPMs and, separately, each of the in-plant system JPMs must evaluate a different safety function, and the same system or evolution cannot be used to evaluate more than one safety function in each location. One of the control room system JPMs must be an engineered safety feature.

   For SRO-U applicants: Evaluate SRO-U applicants on five different safety functions. One of the control room system JPMs must be an engineered safety feature, and the same system or evolution cannot be used to evaluate more than one safety function.

3. Select a task for each JPM that supports, either directly or indirectly and in a meaningful way, the successful fulfillment of the associated safety function. Select the task from the applicable K/A catalog (K/As for plant systems or emergency and abnormal plant evolutions) or the facility licensee's site-specific task list. If this task has an associated K/A, the K/A should have an importance rating of at least 2.5 in the RO column. K/As that have importance ratings of less than 2.5 may be used if justified based on plant priorities; inform the NRC chief examiner if selecting K/As with an importance rating less than 2.5. The selected tasks must be different from the events and evolutions conducted during the simulator operating test and tasks tested on the written examination. A task that is similar to a simulator scenario event may be acceptable if the actions required to complete the task are significantly different from those required in response to the scenario event.

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If it is not possible to develop or locate a suitable task for a selected system, return to step 2 and select a different system.

4. For each JPM, specify the codes for type, source, and location:

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(L)ow power/shutdown	≥ 1	≥ 1	≥ 1
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i. Perform in progress WGDT 3 release (JPM 223) **071A1.08 / 2.7, Ability to predict and/or monitor changes in parameters associated with operation of the Waste Gas Disposal System, including: Waste gas tank discharge rate and/or volume**	D, R	9
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