

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

Facility: Prairie Island		Date of Examination: <u>8/8/22</u>
Exam Level: RO		Operating Test Number: <u>PI-ILT-NRC-</u>
System/JPM Title	Type Code	Safety Function
Control Room Systems		
a. Restore RCS Tave and Respond to Dropped Rod <i>RD-6SF-2</i>	A, D, S	1
b. Rotate Charging Pumps and Respond to Fire In 1K1 <i>RC-26SF-1</i>	A, N, S	2
c. Raise PRT Pressure <i>RC-27S</i>	D, S	3
d. SP1100 12 MDAFWP Monthly Test with 12 MDAFWP Overload <i>AF-22SF</i>	A, D, S	4S
e. SP1130B Train B CNTMT Vacuum Breaker Qtr Test <i>ZC-3S-1</i>	M, S	5
f. Remote Start of D2 with Lockout <i>EG-22SF</i>	A, D, S	6
g. Secure R11/12 in the Control Room <i>RM-5S</i>	D, S	7
h. SP1112 Steam Exclusion Monthly Damper Test <i>ZD-1S</i>	D, EN, S	8
In-Plant Systems		
i. Investigate Containment Condensate High Leak Rate <i>CL-19-1</i>	M	5
j. Restore 121 & 123 IA Compressors <i>F5-19</i>	D, E, L	8
k. RADIOACTIVE Gas Release with High RAD Alarm <i>WG-5F</i>	A, D, R	9

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 5	4-6	2-3
(C)ontrol room			
(D)irect from bank	≤ 9 8	≤ 8	≤ 4
(E)mergency or abnormal in-plant	≥ 1 1	≥ 1	≥ 1
(EN)gineered safety feature (for control room system)	≥ 1 1	≥ 1	≥ 1
(L)ow power/shutdown	≥ 1 1	≥ 1	≥ 1
(N)ew or (M)odified from bank (must apply to at least one alternate path JPM)	≥ 2 3	≥ 2	≥ 1
(P)revious two exams (randomly selected)	≤ 3 0	≤ 3	≤ 2
(R)adiologically controlled area	≥ 1 1	≥ 1	≥ 1
(S)imulator			

Form 3.2-2 Control Room/In-Plant Systems Outline Rev. 4

Facility: Prairie Island		Date of Examination: <u>AUGUST 2022</u>	
Exam Level: RO		Operating Test Number: <u>PI-ILT-NRC-</u>	
System/JPM Title	Type Code	Safety Function	
Control Room Systems			
a. Restore RCS Tave and Respond to Dropped Rod RD-6SF-2: <i>This is a bank alternate path JPM that requires the candidate to transfer rods to manual & pull rods out, then respond to a dropped rod & manually trip the reactor.</i>	A,D,S	1	
b. SP1130B Train B CNTMT Vacuum Breaker Qtr Test ZC-3S-1: <i>This is a bank JPM that requires the candidate to operate CTMT Vac Breakers and determine CV operates within the reference time.</i>	D,S	2	
c. Periodic Rotation of Charging Pumps and Charging pump trip & seal injection restoration. RC-26SF-2: <i>This is a new alternate path JPM that requires the candidate to place a charging pump in manual & raise speed then respond to a fire & manually actuate the fire alarm.</i> <i>ADE: replaced post-OSV</i>	A,N,S	4P	
d. 12 MDAFWP Monthly Test with 12 MDAFWP Overload AF-22SF: <i>This is a bank alternate path JPM that requires the candidate close AFW MVs & start an AFW pump manually, then stop the pump due to an overload condition.</i>	A,D,S	4S	
e. Raise PRT Pressure RC-27S: <i>This is a bank JPM that requires the candidate to raise PRT pressure by operating CVs.</i>	D,S	5	
f. Remote Start of D2 with Lockout EG-22SF: <i>This is a bank alternate path JPM that requires the candidate to manually start a Unit 1 EDG, then stop the EDG on lockout condition.</i>	A,D,S	6	

<p>g. Secure R11/12 in the Control Room RM-5S: <i>This is a bank JPM that requires the candidate to manually shutdown radiation monitors using keypad.</i></p>	D,S	7
<p>h. SP1112 Steam Exclusion Monthly Damper Test ZD-1S: <i>This is a bank ESF-related JPM that requires the candidate to operate steam exclusion dampers.</i></p>	D,EN,S	9
In-Plant Systems		
<p>i. Investigate Containment Condensate High Leak Rate CL-19-1 – Unit 1: <i>This is a new JPM in the RCA that requires the candidate to lower FCU weir tank level.</i></p>	N,R	5
<p>j. Restore 121 & 123 IA Compressors F5-19 – Common to both units: <i>This is an emergency/abnormal bank JPM at low power/shutdown that requires the candidate to locally start Instrument Air compressors following a control room evacuation.</i></p>	D,E,L	8
<p>k. RADIOACTIVE Gas Release with High RAD Alarm WG-5F – Common to both units: <i>This is an alternate path bank JPM in the RCA that requires the candidate to perform a waste gas release, then respond to a high radiation alarm by stopping the release.</i></p>	A,D,R	9

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			

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

Facility: Prairie Island		Date of Examination: <u>AUGUST 2022</u>
Exam Level: SRO-I		Operating Test Number: <u>PI-ILT-NRC-22XXX</u>
System/JPM Title	Type Code	Safety Function
Control Room Systems		
a. Restore RCS Tave and Respond To Dropped Rod <i>RD-6SF-2</i>	A, D, S	1
b. Rotate Charging Pumps and Respond To Fire In 1K1 <i>RC-26SF-1</i>	A, N, S	2
c. Raise PRT Pressure <i>RC-27S</i>	D, S	3
d. SP1100 12 MDAFWP Monthly Test with 12 MDAFWP Overload <i>AF-22SF</i>	A, D, S	4S
e. SP1130B Train B CNTMT Vacuum Breaker Qtr Test <i>ZC-3S-1</i>	M, S	5
f. Remote Start of D2 With Lockout <i>EG-22SF</i>	A, D, S	6
g. N/A		
h. SP1112 Steam Exclusion Monthly Damper Test <i>ZD-1S</i>	D, EN, S	8
In-Plant Systems		
i. Investigate Containment Condensate High Leak Rate <i>CL-19-1</i>	M	5
j. Restore 121 & 123 IA Compressors <i>F5-19</i>	D, E, L	8
k. RADIOACTIVE Gas Release With High RAD Alarm <i>WG-5F</i>	A, D, R	9

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-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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- 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 5	2-3
(C)ontrol room			
(D)irect from bank	≤ 9	≤ 8 7	≤ 4
(E)mergency or abnormal in-plant	≥ 1	≥ 1 1	≥ 1
(EN)gineered safety feature (for control room system)	≥ 1	≥ 1 1	≥ 1
(L)ow power/shutdown	≥ 1	≥ 1 1	≥ 1
(N)ew or (M)odified from bank (must apply to at least one alternate path JPM)	≥ 2	≥ 2 3	≥ 1
(P)revious two exams (randomly selected)	≤ 3	≤ 3 0	≤ 2
(R)adiologically controlled area	≥ 1	≥ 1 1	≥ 1
(S)imulator			

Form 3.2-2 Control Room/In-Plant Systems Outline Rev. 4

Facility: Prairie Island		Date of Examination: <u>AUGUST 2022</u>	
Exam Level: SRO-I		Operating Test Number: <u>PI-ILT-NRC-</u>	
System/JPM Title	Type Code	Safety Function	
Control Room Systems			
a. Restore RCS Tave and Respond to Dropped Rod RD-6SF-2: <i>This is a bank alternate path JPM that requires the candidate to transfer rods to manual & pull rods out, then respond to a dropped rod & manually trip the reactor.</i>	A,D,S	1	
b. SP1130B Train B CNTMT Vacuum Breaker Qtr Test ZC-3S-1: <i>This is a bank JPM that requires the candidate to operate CTMT Vac Breakers and determine CV operates within the reference time.</i>	D,S	2	
c. Periodic Rotation of Charging Pumps and Charging pump trip & seal injection restoration. RC-26SF-2: <i>This is a new alternate path JPM that requires the candidate to place a charging pump in manual & raise speed then respond to a fire & manually actuate the fire alarm.</i> <i>ADE: replaced post-OSV</i>	A,N,S	4P	
d. 12 MDAFWP Monthly Test with 12 MDAFWP Overload AF-22SF: <i>This is a bank alternate path JPM that requires the candidate close AFW MVs & start an AFW pump manually, then stop the pump due to an overload condition.</i>	A,D,S	4S	
e. Raise PRT Pressure RC-27S: <i>This is a bank JPM that requires the candidate to raise PRT pressure by operating CVs.</i>	D,S	5	
f. Remote Start of D2 with Lockout EG-22SF: <i>This is a bank alternate path JPM that requires the candidate to manually start a Unit 1 EDG, then stop the EDG on lockout condition.</i>	A,D,S	6	

g. N/A		
h. SP1112 Steam Exclusion Monthly Damper Test ZD-1S: <i>This is a bank ESF-related JPM that requires the candidate to operate steam exclusion dampers.</i>	D,EN,S	9
In-Plant Systems		
i. Investigate Containment Condensate High Leak Rate CL-19-1 – Unit 1 : <i>This is a new JPM in the RCA that requires the candidate to lower FCU weir tank level.</i>	N,R	5
j. Restore 121 & 123 IA Compressors F5-19 – Common to both units : <i>This is an emergency/abnormal bank JPM at low power/shutdown that requires the candidate to locally start Instrument Air compressors following a control room evacuation.</i>	D,E,L	8
k. RADIOACTIVE Gas Release with High RAD Alarm WG-5F – Common to both units : <i>This is an alternate path bank JPM in the RCA that requires the candidate to perform a waste gas release, then respond to a high radiation alarm by stopping the release.</i>	A,D,R	9

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

Code	License Level Criteria		
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(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			