

Facility: <u>Byron Nuclear Station</u>		Date of Examination: <u>9/27/21</u>
Exam Level: RO <input checked="" type="checkbox"/> SRO-I <input type="checkbox"/> SRO-U <input type="checkbox"/>		Operating Test Number: <u>2021-301</u>
Control Room Systems:* 8 for RO, 7 for SRO-I, and 2 or 3 for SRO-U		
System/JPM Title	Type Code*	Safety Function
a. Perform a 50 Gallon Boration of the RCS (MODE 1), (Boration fails to stop) 004A4.12 Ability to manually operate and/or monitor in the control room: Boration /dilution batch control Modified from JPM Bank 2012 NRC Exam (Modified)	S, A, M    3.8/3.3	1
b. Raise Accumulator Level with the 'A' SI pp 006A1.13 Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ECCS controls including: Accumulator pressure (level, boron concentration) JPM Bank	S, A, D, EN   3.5/3.7	2
c. Align ECCS to Cold Leg (1Component Cooling Pump Available) 011EA1.11 Ability to operate and monitor the following as they apply to a Large Break LOCA: Long-term cooling of core JPM Bank	S, A, L, D, EN  4.2/4.2	3
d. Restore FW per Attachment C of 1BEP ES-0.1 059A4.11 Ability to manually operate and monitor in the control room: Recovery from automatic feedwater isolation JPM Bank	S, D, L  3.1/3.2	4S
e. SX Flooding Requiring RCFC Isolation (Running Train Leak) 022A2.05 Ability to (a) predict the impacts of the following malfunctions or operations on the CCS; and (b) based on the predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Major leak in CCS JPM Bank	S, D, A  3.1/3.5	5
f. Synchronize a D/G to a Bus and Load to 1000 KW 064A4.06 Ability to manually operate and/or monitor in the control room: Manual start, loading, and stopping of the ED/G JPM Bank 2012 NRC Exam	S, D, EN  3.9/3.9	6

<p>g. Respond to RCP Thermal Barrier Leak with CC Valve Failure 003A4.08, Ability to manually operate and/or monitor in the control room: RCP cooling water supplies JPM Bank 3.2/2.9</p>	<p>S, A, D</p>	<p>4P</p>
<p>h. Perform RMS Functional Test in Preparation for Waste Gas Release 071A4.25 Ability to manually operate and/or monitor in the control room: Setting of process radiation monitor alarms, automatic functions, and adjustment of setpoints JPM Bank 3.2/3.2</p>	<p>S, D</p>	<p>9</p>
<p>In-Plant Systems:* 3 for RO, 3 for SRO-I, and 3 or 2 for SRO-U</p>		
<p>i. Locally close 2AF005 valves B Train 2.1.30 Ability to locate and operate components, including local controls. New 4.4/4.0</p>	<p>N, R, E</p>	<p>4S</p>
<p>j. Bus Duct Response 062A2.01 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: Types of loads that, if de-energized, would degrade or hinder plant operation New 3.4/3.9</p>	<p>N, E</p>	<p>6</p>
<p>k. Operate the Fire Detection/Alarm Equipment (without control power) 086A2.04 Ability to (a) predict the impacts of the following malfunctions or operations on the Fire Protection System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Failure to actuate the FPS when required, resulting in fire damage. JPM Bank 3.3/3.9</p>	<p>A, D</p>	<p>8</p>
<p>* All RO and SRO-I control room (and in-plant) systems must be different and serve different safety functions, all five SRO-U systems must serve different safety functions, and in-plant systems and functions may overlap those tested in the control room.</p>		

* Type Codes	Criteria for RO /SRO-I/SRO-U
(A)lternate path (C)ontrol room (D)irect from bank (E)mergency or abnormal in-plant (EN)gineered safety feature (L)ow-Power/Shutdown (N)ew or (M)odified from bank including 1(A) (P)revious 2 exams (R)CA (S)imulator	4-6/4-6 /2-3 <b>(6)</b>  ≤ 9/≤ 8/≤ 4 <b>(8)</b> ≥ 1/≥ 1/≥ 1 <b>(2)</b> ≥ 1/≥ 1/≥ 1 (control room system) <b>(3)</b> ≥ 1/≥ 1/≥ 1 <b>(2)</b> ≥ 2/≥ 2/≥ 1 <b>(3, 1A)</b> ≤ 3/≤ 3/≤ 2 (randomly selected) <b>(0)</b> ≥ 1/≥ 1/≥ 1 <b>(1)</b> <b>(8)</b>

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b. Raise Accumulator Level with the 'A' SI pp 006A1.13 Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ECCS controls including: Accumulator pressure (level, boron concentration) JPM Bank 3.5/3.7	S, A, D, EN	2
c. Align ECCS to Cold Leg (1Component Cooling Pump Available) 011EA1.11 Ability to operate and monitor the following as they apply to a Large Break LOCA: Long-term cooling of core JPM Bank 4.2/4.2	S, A, L, D, EN	3
d. Restore FW per Attachment C of 1BEP ES-0.1 059A4.11 Ability to manually operate and monitor in the control room: Recovery from automatic feedwater isolation JPM Bank 3.1/3.2	S, D, L	4S

<p>e. SX Flooding Requiring RCFC Isolation (Running Train Leak)</p> <p>022A2.05 Ability to (a) predict the impacts of the following malfunctions or operations on the CCS; and (b) based on the predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Major leak in CCS</p> <p>JPM Bank 3.1/3.5</p>	S, D, A	5
<p>f. Synchronize a D/G to a Bus and Load to 1000 KW</p> <p>064A4.06 Ability to manually operate and/or monitor in the control room: Manual start, loading, and stopping of the ED/G</p> <p>JPM Bank 3.9/3.9</p> <p>2012 NRC Exam</p>	S, D, EN	6
<p>g. Respond to RCP Thermal Barrier Leak with CC Valve Failure</p> <p>003A4.08, Ability to manually operate and/or monitor in the control room: RCP cooling water supplies</p> <p>JPM Bank 3.2/2.9</p>	S, A, D	4P
h.		
In-Plant Systems:* 3 for RO, 3 for SRO-I, and 3 or 2 for SRO-U		
<p>i. Locally close 2AF005 valves B Train</p> <p>2.1.30 Ability to locate and operate components, including local controls.</p> <p>New 4.4/4.0</p>	N, R, E	4S
<p>j. Bus Duct Response</p> <p>062A2.01 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: Types of loads that, if de-energized, would degrade or hinder plant operation</p> <p>New 3.4/3.9</p>	N, E	6
<p>k. Operate the Fire Detection/Alarm Equipment (without control power)</p> <p>086A2.04 Ability to (a) predict the impacts of the following malfunctions or operations on the Fire Protection System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Failure to actuate the FPS when required, resulting in fire damage.</p> <p>JPM Bank 3.3/3.9</p>	A, D	8

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b.		
c. Align ECCS to Cold Leg (1Component Cooling Pump Available) 011EA1.11 Ability to operate and monitor the following as they apply to a Large Break LOCA: Long-term cooling of core JPM Bank  4.2/4.2	S, A, L, D, EN	3
d.		
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<p>g. Respond to RCP Thermal Barrier Leak with CC Valve Failure 003A4.08, Ability to manually operate and/or monitor in the control room: RCP cooling water supplies JPM Bank 3.2/2.9</p>	<p>S, A, D,</p>	<p>4P</p>
<p>h.</p>		
<p>In-Plant Systems: 3 for RO, 3 for SRO-I, and 3 or 2 for SRO-U</p>		
<p>i. Locally close 2AF005 valves B Train 2.1.30 Ability to locate and operate components, including local controls. New 4.4/4.0</p>	<p>N, R, E</p>	<p>4S</p>
<p>j. Bus Duct Response 062A2.01 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: Types of loads that, if de-energized, would degrade or hinder plant operation New 3.4/3.9</p>	<p>N, E</p>	<p>6</p>
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