

BYRON - UNITS 1 & 2

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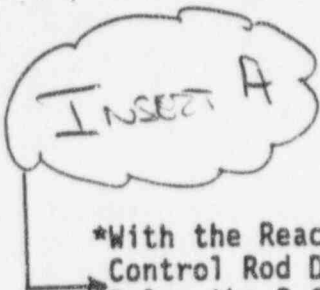
AMENDMENT NO. 5

TABLE 3.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
1. Manual Reactor Trip	2 2	1 1	2 2	1, 2 3*, 4*, 5*	1 10
2. Power Range, Neutron Flux					
a. High Setpoint	4	2	3	1, 2	2
b. Low Setpoint	4	2	3	1###, 2	2
3. Power Range, Neutron Flux High Positive Rate	4	2	3	1, 2	2
4. Power Range, Neutron Flux, High Negative Rate	4	2	3	1, 2	2
5. Intermediate Range, Neutron Flux	2	1	2	1###, 2	3
6. Source Range, Neutron Flux					
a. Startup	2	1	2	2##	4
b. Shutdown*	2	1	2	3*, 4*, 5*	5a
c. Shutdown**	2	N/A	1	3** 4** 5**	5b
7. Overtemperature $\Delta T$	4	2	3	1, 2	6
8. Overpower $\Delta T$	4	2	3	1, 2	6
9. Pressurizer Pressure-Low (Above P-7)	4	2	3	1	6

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### TABLE 3.3-1 (Continued)

#### - TABLE NOTATIONS

- \*With the Reactor Trip System breakers in the closed position and the Control Rod Drive System capable of rod withdrawal.
- ##Below the P-6 (Intermediate Range Neutron Flux Interlock) Setpoint.
- ###Below the P-10 (Low Setpoint Power Range Neutron Flux Interlock) Setpoint.
- @Whenever the Reactor Trip Bypass Breakers are racked in and closed for bypassing a Reactor Trip Breaker.

#### ACTION STATEMENTS

- ACTION 1 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the next 6 hours.
- ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:
- a. The inoperable channel is placed in the tripped condition within 6 hours;
  - b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.1.1; and
  - c. Either, THERMAL POWER is restricted to less than or equal to 75% of RATED THERMAL POWER and the Power Range Neutron Flux Trip Setpoint is reduced to less than or equal to 85% of RATED THERMAL POWER with 4 hours; or, the QUADRANT POWER TILT RATIO is monitored at least once per 12 hours per Specification 4.2.4.2.
- ACTION 3 - With the number of channels OPERABLE one less than the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:
- a. Below the P-6 (Intermediate Range Neutron Flux Interlock) Setpoint, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint; and
  - b. Above the P-6 (Intermediate Range Neutron Flux Interlock) Setpoint but below 10% of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 10% of RATED THERMAL POWER.

## INSERT A

- \*\* With Reactor Trip System Breakers in the open position. In this condition, source range function does not provide reactor trip, but does provide input to the Boron Dilution Protection System (Technical Specification 3.1.2.7) and indication.

REPLACE WITH  
INSERT B

TABLE 3.3-1 (Continued)  
ACTIONS STATEMENTS (Continued)

ACTION 4 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement suspend all operations involving positive reactivity changes.

~~ACTION 5 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement restore the inoperable channel to OPERABLE status within 48 hours or within the next hour open the reactor trip breakers, suspend all operations involving positive reactivity changes, and verify valves CV-111B, CV-8428, CV-8439, CV-8441, and CV-8435 are closed and secured in position. With no channels OPERABLE verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable, and take the actions stated above within 1 hour and verify compliance at least once per 12 hours thereafter.~~

ACTION 6 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

- a. The inoperable channel is placed in the tripped condition within 6 hours; and
- b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.1.1.

ACTION 7 - Deleted

ACTION 8 - With less than the Minimum Number of Channels OPERABLE, within 1 hour determine by observation of the associated permissive annunciator window(s) that the interlock is in its required state for the existing plant condition, or apply Specification 3.0.3.

ACTION 9 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 6 hours, or be in at least HOT STANDBY within the next 6 hours; however, one channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.1.1, provided the other channel is OPERABLE.

ACTION 10 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or open the Reactor trip breakers within the next hour.

ACTION 11 - With the number of OPERABLE channels less than the Total Number of Channels, operation may continue provided the inoperable channels are placed in the tripped condition within 6 hour.

## INSERT B

- Action 5a- With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or within the next hour open the reactor trip breakers. With no channels OPERABLE, immediately open the reactor trip breakers.
- Action 5b- With no channels OPERABLE, immediately suspend operations involving positive reactivity additions and within 1 hour verify valves CV-111B, CV-8428, CV-8439, CV-8441, and CV-8435 are closed. Also, within 1 hour and at least once per 12 hours thereafter, verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable.

## **ATTACHMENT B-2**

### **PROPOSED CHANGES TO APPENDIX A, TECHNICAL SPECIFICATIONS, OF FACILITY OPERATING LICENSES NPF-72 AND NPF-77**

### **BRAIDWOOD NUCLEAR POWER STATION, UNITS 1 AND 2**

#### **Affected Pages**

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TABLE 3.3-1  
REACTOR TRIP SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
1. Manual Reactor Trip	2	1	2	1, 2	1
	2	1	2	3*, 4*, 5*	10
2. Power Range, Neutron Flux					
a. High Setpoint	4	2	3	1, 2	2
b. Low Setpoint	4	2	3	1 <sup>***</sup> , 2	2
3. Power Range, Neutron Flux High Positive Rate	4	2	3	1, 2	2
4. Power Range, Neutron Flux, High Negative Rate	4	2	3	1, 2	2
5. Intermediate Range, Neutron Flux	2	1	2	1 <sup>***</sup> , 2	3
6. Source Range, Neutron Flux					
a. Startup	2	1	2	2 <sup>***</sup>	4
b. Shutdown *	2	1	2	3*, 4*, 5*	5 <sub>a</sub>
7. Overtemperature ΔT	4	2	3	1, 2	6
8. Overpower ΔT	4	2	3	1, 2	6
9. Pressurizer Pressure-Low (Above P-7)	4	2	3	1	6

C. Shutdown \*\*

2

N/A

1

3\*\*, 4\*\*, 5\*\*

5b



Insert A

TABLE 3.3-1 (Continued)

TABLE NOTATIONS

- \*With the Reactor Trip System breakers in the closed position and the Control Rod Drive System capable of rod withdrawal.
- ##Below the P-6 (Intermediate Range Neutron Flux Interlock) Setpoint.
- ###Below the P-10 (Low Setpoint Power Range Neutron Flux Interlock) Setpoint.
- @Whenever the Reactor Trip Bypass Breakers are racked in and closed for bypassing a Reactor Trip Breaker.

ACTION STATEMENTS

- ACTION 1 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the next 6 hours.
- ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:
- a. The inoperable channel is placed in the tripped condition within 6 hours;
  - b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.1.1; and
  - c. Either, THERMAL POWER is restricted to less than or equal to 75% of RATED THERMAL POWER and the Power Range Neutron Flux Trip Setpoint is reduced to less than or equal to 85% of RATED THERMAL POWER within 4 hours; or, the QUADRANT POWER TILT RATIO is monitored at least once per 12 hours per Specification 4.2.4.2.
- ACTION 3 - With the number of channels OPERABLE one less than the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:
- a. Below the P-6 (Intermediate Range Neutron Flux Interlock) Setpoint, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint; and
  - b. Above the P-6 (Intermediate Range Neutron Flux Interlock) Setpoint but below 10% of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 10% of RATED THERMAL POWER.



## **INSERT A**

- \*\* With Reactor Trip System Breakers in the open position. In this condition, source range function does not provide reactor trip, but does provide input to the Boron Dilution Protection System (Technical Specification 3.1.2.7) and indication.

Replace with  
Insert B

TABLE 3.3-1 (Continued)  
ACTION STATEMENTS (Continued)

ACTION 4 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement suspend all operations involving positive reactivity changes.

~~ACTION 5 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement restore the inoperable channel to OPERABLE status within 48 hours or within the next hour open the reactor trip breakers, suspend all operations involving positive reactivity changes, and verify valves CV-111B, CV-8428, CV-8439, CV-8441, and CV-8435 are closed and secured in position. With no channels OPERABLE verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable, and take the actions stated above within 1 hour and verify compliance at least once per 12 hours thereafter.~~

ACTION 6 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

- a. The inoperable channel is placed in the tripped condition within 6 hours; and
- b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels per Specification 4.3.1.1.

ACTION 7 - Deleted

ACTION 8 - With less than the Minimum Number of Channels OPERABLE, within 1 hour determine by observation of the associated permissive annunciator window(s) that the interlock is in its required state for the existing plant condition, or apply Specification 3.0.3.

ACTION 9 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 6 hours, or be in at least HOT STANDBY within the next 6 hours; however, one channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.1.1, provided the other channel is OPERABLE.

ACTION 10 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or open the Reactor trip breakers within the next hour.

ACTION 11 - With the number of OPERABLE channels less than the Total Number of Channels, operation may continue provided the inoperable channels are placed in the tripped condition within 6 hours.

## INSERT B

- Action 5a- With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or within the next hour open the reactor trip breakers. With no channels OPERABLE, immediately open the reactor trip breakers.
- Action 5b- With no channels OPERABLE, immediately suspend operations involving positive reactivity additions and within 1 hour verify valves CV-111B, CV-8428, CV-8439, CV-8441, and CV-8435 are closed. Also, within 1 hour and at least once per 12 hours thereafter, verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable.

# **ATTACHMENT C**

## **EVALUATION OF SIGNIFICANT HAZARDS CONSIDERATIONS FOR PROPOSED CHANGES TO APPENDIX A, TECHNICAL SPECIFICATIONS, OF FACILITY OPERATING LICENSES NPF-37, NPF-66, NPF-72, AND NPF-77**

Commonwealth Edison Company (ComEd) has evaluated this proposed amendment and determined that it involves no significant hazards considerations. According to Title 10, Code of Federal Regulations, Section 50, Subsection 92, Paragraph c (10 CFR 50.92 (c)), a proposed amendment to an operating license involves no significant hazards considerations if operation of the facility in accordance with the proposed amendment would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated; or
2. Create the possibility of a new or different kind of accident from any accident previously evaluated; or
3. Involve a significant reduction in a margin of safety.

### **A. INTRODUCTION**

Commonwealth Edison Company (ComEd) proposes to amend Technical Specification (TS) 3.3.1, "Reactor Trip System Instrumentation," Table 3.3-1, Functional Unit 6, "Source Range, Neutron Flux," for both Byron Nuclear Power Station, Units 1 and 2 (Byron), and Braidwood Nuclear Power Station, Units 1 and 2 (Braidwood) to be consistent with NUREG-1431, "Standard Technical Specifications Westinghouse Plants," Revision 1, April 1995 (NUREG-1431), TS 3.3.1, "Reactor Trip System Instrumentation," Table 3.3.1-1, Function 5, "Source Range Neutron Flux."

This proposed license amendment request would remove the overly conservative requirements placed on continued plant operation in Modes 3, 4, and 5 when only one source range detector is operable for a period of greater than forty-eight (48) hours. Specifically, this proposed license amendment request will still require that the reactor trip breakers (RTBs) be opened after 48 hours with one inoperable source range

detector. However, the requirements to suspend all operations involving positive reactivity changes and verifying valves CV-111B, CV-8428, CV-8439, CV-8441, and CV-8435 are closed and secured in position will be removed. The remaining operable source range detector will continue to provide the necessary indication and input into the boron dilution protection system (BDPS) to mitigate the consequences of an uncontrolled dilution event. These overly conservative requirements can have adverse effects on shutdown safety considerations such as reactor coolant system (RCS) inventory control.

With both source range channels inoperable in Modes 3, 4, and 5, this proposed license amendment request would require that the RTBs be opened, all positive reactivity changes be suspended, dilution path valves be closed and shutdown margin requirements be periodically verified. This is also consistent with the requirements of NUREG-1431, TS 3.3.1, Table 3.3.1-1, Function 5.

This change minimizes possible non-conservative shutdown safety situations and possible outage scheduling conflicts when one source range detector is inoperable.

## **B. NO SIGNIFICANT HAZARDS ANALYSIS**

### **1. The proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.**

This proposed change does not result in the installation of any new equipment, and no existing equipment is modified. Operability of source range detectors in Modes 3, 4 and 5 with RTBs open is not assumed as the precursor or initiator for any accident previously analyzed.

One operable source range detector is acceptable in Modes 3, 4, and 5 with the RTBs open, since under these conditions, no core alterations that could affect core reactivity are possible, and control rod withdrawal is not possible. Under these conditions, the source range is only providing indication and input to the boron dilution protection system (BDPS). The impact of an inoperable source range detector on BDPS is addressed by compliance with the Action Requirements of TS 3.1.2.7, "Boron Dilution Protection System." TS 3.1.2.7 addresses the potential for a positive reactivity addition via a dilution event. With one source range detector operable, indication of any positive reactivity changes will still be available via the operable source range detector. Also, BDPS will still respond automatically to mitigate a positive reactivity change. Thus, with one source range detector inoperable and RTBs open, indication of a positive reactivity change is still provided via the operable source range detector, and automatic mitigation is still available via BDPS to ensure that there is no significant increase in the consequences of an accident previously evaluated.

With no source range detectors operable, the proposed action statement requires that the RTBs be immediately opened, all positive reactivity changes be immediately suspended, shutdown margin be initially verified within one hour and at least once per 12 hours thereafter and dilution valves be closed. Thus, with no source range detectors available, potential sources of positive reactivity addition are disabled and the shutdown condition of the core is periodically verified which ensures that there is no significant increase in the consequences of an accident previously evaluated.

Therefore, this proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

**2. The proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.**

This proposed change deals only with the Action Requirements for inoperable source range instruments. No new equipment is being installed, no existing equipment is being modified. No new system configurations will be introduced as a result of this proposed change. Therefore, no new or different failure modes are being introduced.

Thus, this proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

**3. The proposed change does not involve a significant reduction in a margin of safety.**

With one source range detector inoperable beyond 48 hours, this proposed revision requires that the RTBs be opened. With the RTBs open, the source range instruments provide only indication and input to BDPS. With only one source range detector inoperable, the indication function is still satisfied by the operable source range detector. The impact of an inoperable source range detector on BDPS is addressed by compliance with the Action Requirements of TS 3.1.2.7, "Boron Dilution Protection System.". Also, BDPS will still respond automatically to mitigate a positive reactivity change based on input from the operable source range detector. Thus with one source range detector inoperable the proposed action requirement places the affected unit in a condition where the reactor trip function of the source range is no longer required, and the remaining source range functions are satisfied by the operable source range indicator. Thus, with one source range detector inoperable, this proposed change does not involve a significant reduction in a margin of safety.

With no source range detectors operable, the proposed action statement requires that the RTBs be immediately opened, all positive reactivity changes be immediately suspended, shutdown margin be initially verified within one hour and at least once per 12 hours thereafter and dilution valves be closed and secured in position. This provides protection equivalent to that provided by the current specification. Thus, with both source range detectors inoperable, this proposed change does not involve a significant reduction in a margin of safety.

Therefore, this proposed change does not involve a significant reduction in a margin of safety.

Based on the above evaluation, ComEd has concluded that these changes involve no significant hazards considerations.



## **ATTACHMENT D**

### **ENVIRONMENTAL ASSESSMENT FOR PROPOSED CHANGES TO APPENDIX A, TECHNICAL SPECIFICATIONS, OF FACILITY OPERATING LICENSES NPF-37, NPF-66, NPF-72, AND NPF-77**

Commonwealth Edison Company (ComEd) has evaluated this proposed license amendment request against the criteria for identification of licensing and regulatory actions requiring environmental assessment in accordance with Title 10, Code of Federal Regulations, Part 51, Section 21 (10 CFR 51.21). ComEd has determined that this proposed license amendment request meets the criteria for a categorical exclusion set forth in 10 CFR 51.22(c)(9). This determination is based upon the following:

1. The proposed licensing action involves the issuance of an amendment to a license for a reactor pursuant to 10 CFR 50 which changes a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or which changes an inspection or a surveillance requirement. This proposed license amendment request changes the actions required for either one or both source range detectors inoperable in Modes 3, 4, and 5;
2. this proposed license amendment request involves no significant hazards considerations as demonstrated in Attachment C;
3. there is no significant change in the types or significant increase in the amounts of any effluent that may be released offsite; and
4. there is no significant increase in individual or cumulative occupational radiation exposure.

Therefore, pursuant to 10 CFR 51.22(b), neither an environmental impact statement nor an environmental assessment is necessary for this proposed license amendment request.