

ATTACHMENT A

PROPOSED CHANGES TO APPENDIX A

TECHNICAL SPECIFICATION OF FACILITY

OPERATING LICENSES NPF-37, NPF-66, NPF-72 AND NPF-75

BYRON STATION

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BRAIDWOOD STATION

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REACTIVITY CONTROL SYSTEMS

3/4.1.3 MOVABLE CONTROL ASSEMBLIES

GROUP HEIGHT

LIMITING CONDITION FOR OPERATION

3.1.3.1 All full-length shutdown and control rods shall be OPERABLE and positioned within ± 12 steps (indicated position) of their group step counter demand position.

APPLICABILITY: MODES 1* and 2*.

ACTION:

- a. With one or more full-length rods inoperable due to being immovable as a result of excessive friction or mechanical interference or known to be untrippable, determine that the SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is satisfied within 1 hour and be in HOT STANDBY within 6 hours.
- ~~b. With more than one full-length rod inoperable or misaligned from the group step counter demand position by more than ± 12 steps (indicated position), be in HOT STANDBY within 6 hours.~~
- b.g. With one full-length rod trippable but inoperable due to causes other than addressed by ACTION a. above, or misaligned from its group step counter demand height by more than ± 12 steps (indicated position), POWER OPERATION may continue provided that within 1 hour:
 1. The rod is restored to OPERABLE status within the above alignment requirements, or
 2. The rod is declared inoperable and the remainder of the rods in the group with the inoperable rod are aligned to within ± 12 steps of the inoperable rod while maintaining the rod sequence and insertion limits of Figure 3.1-1. The THERMAL POWER level shall be restricted pursuant to Specification 3.1.3.6 during subsequent operation, or
 3. The rod is declared inoperable and the SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is satisfied. POWER OPERATION may then continue provided that:
 - a) The THERMAL POWER level is reduced to less than or equal to 75% of RATED THERMAL POWER within the next hour and within the following 4 hours the High Neutron Flux Trip Setpoint is reduced to less than or equal to 85% of RATED THERMAL POWER.
 - b) The SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is determined at least once per 12 hours;

*See Special Test Exceptions Specifications 3.10.2 and 3.10.3.

REACTIVITY CONTROL SYSTEMS

LIMITING CONDITION FOR OPERATION

ACTION (Continued)

- c) A power distribution map is obtained from the movable incore detectors and $F_Q(Z)$ and $F_{\Delta H}^N$ are verified to be within their limits within 72 hours; and
- d) A reevaluation of each accident analysis of Table 3.1-1 is performed within 5 days; this reevaluation shall confirm that the previously analyzed results of these accidents remain valid for the duration of operation under these conditions;

C. (Insert new Action C., attached)

SURVEILLANCE REQUIREMENTS

4.1.3.1.1 The position of each full-length rod shall be determined to be within the group demand limit by verifying the individual rod positions at least once per 12 hours except during time intervals when the rod position deviation monitor is inoperable, then verify the group positions at least once per 4 hours.

4.1.3.1.2 Each full-length rod not fully inserted in the core shall be determined OPERABLE by movement of at least 10 steps in any one direction at least once per 31 days.

REACTIVITY CONTROL SYSTEMS

BASES

MOVABLE CONTROL ASSEMBLIES (Continued)

18, 210, and 228 steps withdrawn for the Shutdown Banks provides assurances that the Digital Rod Position Indicator is operating correctly over the full range of indication. Since the Digital Rod Position System does not indicate the actual shutdown rod position between 18 steps and 210 steps, only points in the indicated ranges are picked for verification of agreement with demanded position.

The ACTION statements which Inoperability or permit limited variations from the basic requirements are accompanied by additional restrictions which ensure that the original design criteria are met. Single, trippable Misalignment of a rod requires measurement of peaking factors and a restriction in THERMAL POWER. These restrictions provide assurance of fuel rod integrity during continued operation. In addition, those safety analyses affected by an inoperable or misaligned rod are reevaluated to confirm that the results remain valid during future operation. *Insert attached, same P*

The maximum rod drop time restriction is consistent with the assumed rod drop time used in the safety analyses. Measurement with T_{avg} greater than or equal to 550°F and with all reactor coolant pumps operating ensures that the measured drop times will be representative of insertion times experienced during a Reactor trip at operating conditions.

Control rod positions and OPERABILITY of the rod position indicators are required to be verified on a nominal basis of once per 12 hours with more frequent verifications required if a rod position deviation monitor is inoperable. These verification frequencies are adequate for assuring that the applicable LCOs are satisfied.

. Insert to page 3/4 1-15

- c. With more than one full-length rod trippable but inoperable due to causes other than addressed by ACTION a. above, or misaligned from its group step counter demand height by more than ± 12 steps (indicated position), POWER OPERATION may continue provided that:
1. Within 1 hour, the remainder of the rods in the group(s) with the inoperable rods are aligned to within ± 12 steps of the inoperable rods while maintaining the rod sequence and insertion limits of Figure 3.1-1. The THERMAL POWER level shall be restricted pursuant to Specification 3.1.3.6 during subsequent operation, and
 2. The inoperable rods shall be restored to OPERABLE status within 72 hours.

Otherwise, be in HOT STANDBY within 6 hours.

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(continue with paragraph)

With multiple inoperable or misaligned, but trippable, rods; alignment of the remaining rods in the bank(s) to within ± 12 steps of the inoperable rods, and restriction in THERMAL POWER assures fuel rod integrity during continued operation.

For Specification 3.1.3.1 ACTIONS b. and c., it is incumbent on the plant to confirm trippability of the inoperable rod(s). This confirmation may be, for example, by verification of a control system failure, usually electrical in nature (such as an Urgent Failure Alarm), or that the failure is associated with the control rod stepping mechanism. In the event the plant is unable to verify the rod(s) trippability, it must be assumed to be untrippable and thus falls under the requirements of ACTION a.

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REACTIVITY CONTROL SYSTEMS

3/4.1.3 MOVABLE CONTROL ASSEMBLIES

GROUP HEIGHT

LIMITING CONDITION FOR OPERATION

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APPLICABILITY: MODES 1* and 2*.

ACTION:

- a. With one or more full-length rods inoperable due to being immovable as a result of excessive friction or mechanical interference or known to be untrippable, determine that the SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is satisfied within 1 hour and be in HOT STANDBY within 6 hours.
- ~~b. With more than one full-length rod inoperable or misaligned from the group step counter demand position by more than ± 12 steps (indicated position), be in HOT STANDBY within 6 hours.~~
- b. With one full-length rod trippable but inoperable due to causes other than addressed by ACTION a. above, or misaligned from its group step counter demand height by more than ± 12 steps (indicated position), POWER OPERATION may continue provided that within 1 hour:
 1. The rod is restored to OPERABLE status within the above alignment requirements, or
 2. The rod is declared inoperable and the remainder of the rods in the group with the inoperable rod are aligned to within ± 12 steps of the inoperable rod while maintaining the rod sequence and insertion limits of Figure 3.1-1. The THERMAL POWER level shall be restricted pursuant to Specification 3.1.3.6 during subsequent operation, or
 3. The rod is declared inoperable and the SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is satisfied. POWER OPERATION may then continue provided that:
 - a) The THERMAL POWER level is reduced to less than or equal to 75% of RATED THERMAL POWER within the next hour and within the following 4 hours the High Neutron Flux Trip Setpoint is reduced to less than or equal to 85% of RATED THERMAL POWER.
 - b) The SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is determined at least once per 12 hours;

*See Special Test Exceptions Specifications 3.10.2 and 3.10.3.

REACTIVITY CONTROL SYSTEMS

LIMITING CONDITION FOR OPERATION

ACTION (Continued)

- c) A power distribution map is obtained from the movable incore detectors and $F_Q(Z)$ and $F_{\Delta H}^N$ are verified to be within their limits within 72 hours; and
- d) A reevaluation of each accident analysis of Table 3.1-1 is performed within 5 days; this reevaluation shall confirm that the previously analyzed results of these accidents remain valid for the duration of operation under these conditions;

c. (Insert new Action c., attached)

SURVEILLANCE REQUIREMENTS

4.1.3.1.1 The position of each full-length rod shall be determined to be within the group demand limit by verifying the individual rod positions at least once per 12 hours except during time intervals when the rod position deviation monitor is inoperable, then verify the group positions at least once per 4 hours.

4.1.3.1.2 Each full-length rod not fully inserted in the core shall be determined OPERABLE by movement of at least 10 steps in any one direction at least once per 31 days.

REACTIVITY CONTROL SYSTEMS

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MOVABLE CONTROL ASSEMBLIES (Continued)

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The ACTION statements which Inoperability or permit limited variations single, trippable from the basic requirements are accompanied by additional restrictions which ensure that the original design criteria are met. Misalignment of a rod requires measurement of peaking factors and a restriction in THERMAL POWER. These restrictions provide assurance of fuel rod integrity during continued operation. In addition, those safety analyses affected by a misaligned rod are reevaluated to confirm that the results remain valid during an inoperable or future operation. ← + Insert attached, same??

The maximum rod drop time restriction is consistent with the assumed rod drop time used in the safety analyses. Measurement with T_{avg} greater than or equal to 550°F and with all reactor coolant pumps operating ensures that the measured drop times will be representative of insertion times experienced during a Reactor trip at operating conditions.

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- c. With more than one full-length rod trippable but inoperable due to causes other than addressed by ACTION a. above, or misaligned from its group step counter demand height by more than ± 12 steps (indicated position), POWER OPERATION may continue provided that:
1. Within 1 hour, the remainder of the rods in the group(s) with the inoperable rods are aligned to within ± 12 steps of the inoperable rods while maintaining the rod sequence and insertion limits of Figure 3.1-1. The THERMAL POWER level shall be restricted pursuant to Specification 3.1.3.6 during subsequent operation, and
 2. The inoperable rods shall be restored to OPERABLE status within 72 hours.

Otherwise, be in HOT STANDBY within 6 hours.

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With multiple inoperable or misaligned, but trippable, rods; alignment of the remaining rods in the bank(s) to within ± 12 steps of the inoperable rods, and restriction in THERMAL POWER assures fuel rod integrity during continued operation.

For Specification 3.1.3.1 ACTIONS b. and c., it is incumbent on the plant to confirm trippability of the inoperable rod(s). This confirmation may be, for example, by verification of a control system failure, usually electrical in nature (such as an Urgent Failure Alarm), or that the failure is associated with the control rod stepping mechanism. In the event the plant is unable to verify the rod(s) trippability, it must be assumed to be untrippable and thus falls under the requirements of ACTION a.

ATTACHMENT B

DESCRIPTION AND SUMMARY OF PROPOSED CHANGES

The proposed changes involve Technical Specification 3.1.3.1, Moveable Control Assemblies, Action Statements b and c and the Bases Section for this specification for the Byron and Braidwood Stations. This change is to address multiple inoperable, but trippable, control rods. This condition exists when a group or several groups of control rods become immovable by a rod control system failure. In this situation, the control rods will not step in or out, but will drop if a reactor trip were initiated.

The Technical Specifications currently do not recognize the fact that in this situation the control rods would still perform their safety function. Yet, because more than one control rod is immovable, the plant is forced to repair the failure or be in HOT STANDBY in six hours. Westinghouse believes this drastic action is unnecessary and the NRC has allowed Shearson Harris, Seabrook, Vogtle South Texas and Millstone to change their Technical Specifications to address this situation.

The Byron and Braidwood Technical Specification 3.1.3.1, Action Statement b, would be expanded to address multiple immovable, but trippable, control rods. Specifically, the action statement would permit power operation when more than one rod is trippable, but inoperable, provided that within one hour the remainder of the rods in the group(s) with the inoperable rods are aligned to within ± 12 steps of the inoperable rods while maintaining the rod sequence and rod insertion limit. This condition would be permitted until the inoperable rods are restored to an operable status, but, not to exceed 72 hours. Otherwise, the unit must be placed in HOT STANDBY within the next six hours.

It is incumbent on the plant to confirm trippability of the inoperable control rod(s). In the event the plant is unable to verify trippability, the control rod(s) must be assumed to be untrippable and thus, Action A will apply. The Basis Section for this specification would be changed to reflect this condition.

ATTACHMENT C

EVALUATION OF SIGNIFICANT HAZARDS CONSIDERATION

Commonwealth Edison has evaluated this proposed amendment and determined that it involves no significant hazards considerations. According to 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 the margin of safety.

This change will provide new Action Statement requirements to Specification 3.1.3.1 to restrict rod movement and thermal power levels with multiple inoperable, but trippable, control rods. This change addresses the situation where more than one rod is inoperable/immovable. In this condition the rods are unable to provide the normal control function, however, the safety related function of trippability is unaffected. This situation can be caused, for example, by a blown fuse in the non-safety related control circuitry.

The previously evaluated accident conditions applicable to this change are the possible rod misalignment, rod ejection, and dropped rod scenarios. These accidents have been analyzed in Chapter 15 of the FSAR. The proposed action requirement changes ensure that the control rod configuration is kept within the bounds of the configurations assumed for these analyses. If rods are misaligned and cannot be brought to within the alignment limits, the Action Statement requires that the plant be placed in HOT SHUTDOWN within six hours. This time limit is unchanged from the current specification. In addition, a 72 hour time limit is placed on operation while in this Action Statement to prohibit indefinite operation with restricted operational flexibility. Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

This change does not involve any modification in the operational limits or physical design of the control rod drive mechanisms. The revised action requirements assure that the control rods and thermal power level are restricted to within the configurations analyzed in the FSAR. As such, the change to the Action Statement does not create the possibility of a new or different kind of accident from any previously analyzed.

The revised action requirements restrict rod movement and thermal power level in accordance with the limit of existing Technical Specifications. No new limits are made and conditions in the reactor after completing the action requirement will be within normal operating ranges. Therefore, the changes do not involve a significant reduction in the margin of safety.

Based on the above considerations, Commonwealth Edison has determined that these changes involved no significant hazards consideration.