



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 80 TO FACILITY OPERATING LICENSE NO. NPF-37,
AMENDMENT NO. 80 TO FACILITY OPERATING LICENSE NO. NPF-66,
AMENDMENT NO. 72 TO FACILITY OPERATING LICENSE NO. NPF-72,
AND AMENDMENT NO. 72 TO FACILITY OPERATING LICENSE NO. NPF-77
COMMONWEALTH EDISON COMPANY
BYRON STATION, UNIT NOS. 1 AND 2
BRAIDWOOD STATION, UNIT NOS. 1 AND 2
DOCKET NOS. STN 50-454, STN 50-455, STN 50-456 AND STN 50-457

1.0 INTRODUCTION

Byron Station, Units 1 and 2, and Braidwood Station, Units 1 and 2, Technical Specifications (TS) currently provide an allowed outage time (AOT) of 48 hours for one inoperable source range neutron flux instrumentation channel. The corresponding action statement indicates that if the inoperable channel is not restored to an operable status in Shutdown Modes 3, 4, and 5 within the next hour the reactor trip breakers (RTB) are to be opened, all operations involving positive reactivity addition are to be suspended and dilution valves are to be verified closed and secured in position. For the condition where both source range neutron flux instrumentation channels are inoperable, the current TS requirement is to perform the same actions within one hour as those required for the inoperability of one channel after 48 hours, verify compliance with the TS required shutdown margin and repeat this verification at least once per 12 hours thereafter.

By letter dated January 11, 1996, Commonwealth Edison Company (ComEd, the licensee) submitted proposed changes to the Byron/Braidwood TSs to delete the requirement to suspend all operations involving positive reactivity addition and to verify the closed status of the dilution valves when one source range neutron flux instrumentation channel is inoperable. The proposed changes also delete the 1-hour AOT from the action statement when both channels are inoperable and add a note to explain the function of the source range neutron flux instrumentation channels when RTBs are open.

2.0 EVALUATION

The source range neutron flux trip protects against an uncontrolled rod cluster control assembly (RCCA) bank withdrawal accident from a subcritical condition in Mode 2 (startup). This trip function provides redundant

protection to the low setpoint trip of the power range and the intermediate range neutron flux instrumentation channels in Modes 2, 3, and 4 when the RTBs are in the closed position and the Control Rod Drive (CRD) system is capable of rod withdrawal. With the RTBs open or CRD system not capable of rod withdrawal, the source range detectors are not required to trip the reactor. However, the source range neutron flux monitoring system must be operable during shutdown to monitor core neutron levels, provide indication of reactivity changes that may occur as a result of events like boron dilution, and provide an input to the boron dilution protection system (BDPS). The Byron and Braidwood current TS action for one inoperable channel of source range neutron flux instrumentation during Modes 3, 4, and 5 requires restoration of the inoperable channel to an operable status within 48 hours, or within the next hour after the opening of the RTBs, suspending all operations involving positive reactivity changes, and verifying that the primary coolant dilution valves are closed and secured in position. For the condition where both channels of source range neutron flux instrumentation are inoperable, the current TS requires, within 1 hour verify compliance with the shutdown margin, perform the same actions as those required for the loss of one channel, and repeat the shutdown margin verification at least once per 12 hours thereafter.

The licensee determined that the current TS requirement to suspend all operation involving positive reactivity changes and verify the closed and secured position of dilution valves after opening the RTBs when only one channel of source range neutron flux instrumentation is inoperable is overly conservative and may have adverse effects on plant shutdown safety considerations such as maintaining reactor coolant system inventory and temperature control. With the RTBs open or the CRD system not capable of rod withdrawal, the source range detectors are not required to trip the reactor and, thus, no instrumentation redundancy is needed to single failure capability. The remaining operable source range neutron flux detector is sufficient to provide the necessary indications and input into the BDPS to mitigate the consequences of a possible dilution event during Shutdown Modes 3, 4, and 5. Thus, the licensee proposed elimination of the above TS action requirement. The proposed change is consistent with the approved Westinghouse Standard Technical Specifications (STS), NUREG-1431.

The licensee noted that the current TS permits 1 hour to open the RTBs, suspend all operations involving positive reactivity changes, and verify the closed status of dilution valves when both channels of source range neutron flux instrumentation are inoperable. This 1 hour AOT is non-conservative in that no indication of core reactivity status is available and, thus, the licensee proposed that the above required TS actions be immediately implemented on loss of source range neutron flux instrumentation. This proposed change is also consistent with the Westinghouse STS, NUREG-1431.

In addition to the above proposed changes to the TSs, the licensee proposed to add a note to clearly identify the function of the source range neutron flux instrumentation in the shutdown modes of operation. The new TSs will state that with one inoperable channel, restore the channel to operable status

within 48 hours or within the next hour open the RTBs, and with no channels operable, immediately open the RTBs and suspend operations involving positive reactivity addition. Verification of compliance with the TSs required shutdown margin will remain the same as required by the current TSs. The new TSs and the note are in accordance with the Westinghouse STS, NUREG-1431.

Based on the review of the licensee's submittal, the staff concludes that the proposed changes to the actions for inoperability of source range neutron flux instrument channels are consistent with the Westinghouse STS and do not degrade or adversely affect plant safety and are, therefore, acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Illinois State official was notified of the proposed issuance of the amendments. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (61 FR 3509). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: I. Ahmed

Date: March 15, 1996