

Branch Technical Position HICB-3

Guidance on Protection System Trip Point Changes for Operation with Reactor Coolant Pumps out of Service

A. Background

For the past several years and before the development of ANSI/IEEE Std 279, "Criteria for Protection Systems for Nuclear Power Generating Stations," the Staff has required automatic adjustment to more restrictive settings of trips affecting reactor safety by means of circuits satisfying the single-failure criterion. IEEE Std 603, "IEEE Standard Criteria for Safety Systems for Nuclear Power Generating Stations" contains a similar requirement. The basis for this requirement is that the function can be accomplished more reliably by automatic circuitry than by a human operator. This design practice, which has also been adopted independently by the national laboratories and by much of industry, served as the basis for paragraph 4.15, "Multiple Set Points," of ANSI/IEEE Std 279.

More recently, all applicants have stated that their protection systems were designed to meet ANSI/IEEE Std 279. Paragraph 4.15 of ANSI/IEEE Std 279 specified that where a mode of reactor operation requires a more restrictive set point, the means for ensuring use of the more restrictive set point shall be positive and must meet the other requirements of ANSI/IEEE Std 279. A number of designs have been proposed and accepted which reliably and simply satisfy this requirement. During the review of some applications, however, certain design deficiencies have been found. The purpose of this position is to provide additional guidance on the application of Section 4.15 of ANSI/IEEE Std 279 and Section 6.8.2 of IEEE Std 603.

B. Branch Technical Position

1. If more restrictive safety trip points are required for operation with a reactor coolant pump out of service, and if operation with a reactor coolant pump out of service is of sufficient likelihood to be a planned mode of operation, the change to the more restrictive trip points should be accomplished automatically.
2. Plants with designs not in accordance with the above should have included in the plant technical specifications a requirement that the reactor be shut down prior to changing the set points manually.

C. References

ANSI/IEEE Std 279-1971. "Criteria for Protection Systems for Nuclear Power Generating Stations."

IEEE Std 603-1991. "IEEE Standard Criteria for Safety Systems for Nuclear Power Generating Stations."

