

## **Branch Technical Position HICB-6**

### **Guidance on Design of Instrumentation and Controls Provided to Accomplish Changeover from Injection to Recirculation Mode**

#### **A. Background**

Designs are reviewed with regard to the automatic and manual initiation of protective actions, as set forth in paragraph 4.17 of ANSI/IEEE Std 279, "Criteria for Protection Systems for Nuclear Power Generating Stations," or paragraphs 6.2 and 7.2 of IEEE Std 603, "IEEE Standard Criteria for Safety Systems for Nuclear Power Generating Stations." For some designs, the Staff concluded that the proposed design of the circuits used to change over to the recirculation mode of operation following a loss-of-coolant accident did not conform to ANSI/IEEE Std 279, and the complexity of the proposed changeover procedure raised questions as to whether the operator could be expected to perform correctly the required actions within the time allotted and based on the information available to him or her.

#### **B. Branch Technical Position**

1. A design that provides manual initiation at the system level of the transfer to the recirculation mode, while not ideal, is sufficient and satisfies the intent of ANSI/IEEE Std 279, provided that adequate instrumentation and information display are available to the operator so that he or she can make the correct decision at the correct time. Furthermore, it should be shown that, in case of operator error, sufficient time and information are available so that the operator can correct the error, and that the consequences of such an error are acceptable.
2. Automatic transfer to the recirculation mode is preferable to manual transfer, for the reasons cited above, and should be provided for standard plant designs submitted for review on a generic basis under the Commission's standardization policy.

#### **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."

