



## U.S. NUCLEAR REGULATORY COMMISSION

# STANDARD REVIEW PLAN

### BRANCH TECHNICAL POSITION 7-6

### GUIDANCE ON DESIGN OF INSTRUMENTATION AND CONTROLS PROVIDED TO ACCOMPLISH CHANGEOVER FROM INJECTION TO RECIRCULATION MODE

#### REVIEW RESPONSIBILITIES

**Primary** - Organization responsible for the review of instrumentation and controls

**Secondary** - None

#### A. Background

Designs are reviewed with regard to the automatic and manual initiation of protective actions, as set forth in clause 4.17 of IEEE Std 279-1971, "Criteria for Protection Systems for Nuclear Power Generating Stations," or clauses 6.2 and 7.2 of IEEE Std 603-1991, "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 IEEE Std 279-1971 or IEEE Std 603-1991, 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.

Revision 5 - March 2007

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#### USNRC STANDARD REVIEW PLAN

This Standard Review Plan, NUREG-0800, has been prepared to establish criteria that the U.S. Nuclear Regulatory Commission staff responsible for the review of applications to construct and operate nuclear power plants intends to use in evaluating whether an applicant/licensee meets the NRC's regulations. The Standard Review Plan is not a substitute for the NRC's regulations, and compliance with it is not required. However, an applicant is required to identify differences between the design features, analytical techniques, and procedural measures proposed for its facility and the SRP acceptance criteria and evaluate how the proposed alternatives to the SRP acceptance criteria provide an acceptable method of complying with the NRC regulations.

The standard review plan sections are numbered in accordance with corresponding sections in Regulatory Guide 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants (LWR Edition)." Not all sections of Regulatory Guide 1.70 have a corresponding review plan section. The SRP sections applicable to a combined license application for a new light-water reactor (LWR) are based on Regulatory Guide 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition)."

These documents are made available to the public as part of the NRC's policy to inform the nuclear industry and the general public of regulatory procedures and policies. Individual sections of NUREG-0800 will be revised periodically, as appropriate, to accommodate comments and to reflect new information and experience. Comments may be submitted electronically by email to [NRR\\_SRP@nrc.gov](mailto:NRR_SRP@nrc.gov).

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## **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 IEEE Std 279-1971 or IEEE Std 603-1991, 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**

1. IEEE Std 279-1971, "Criteria for Protection Systems for Nuclear Power Generating Stations."
2. IEEE Std 603-1991, "IEEE Standard Criteria for Safety Systems for Nuclear Power Generating Stations."

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### **PAPERWORK REDUCTION ACT STATEMENT**

The information collections contained in the Standard Review Plan are covered by the requirements of 10 CFR Part 50 and 10 CFR Part 52, and were approved by the Office of Management and Budget, approval number 3150-0011 and 3150-0151.

### **PUBLIC PROTECTION NOTIFICATION**

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