



U.S. NUCLEAR REGULATORY COMMISSION
STANDARD REVIEW PLAN

BRANCH TECHNICAL POSITION (BTP) 8-5

SUPPLEMENTAL GUIDANCE FOR BYPASS AND INOPERABLE STATUS INDICATION FOR ENGINEERED SAFETY FEATURES SYSTEMS

REVIEW RESPONSIBILITIES

Primary - Organization responsible for electrical engineering

Secondary - None

A. BACKGROUND

The guidance of RG 1.47 needs further details as to the methods for providing an acceptable design for the bypass and inoperable status indicators for engineered safety feature (ESF) systems. The purpose of this BTP is to provide supplemental guidance for implementing RG 1.47. This BTP also supplements the criteria for bypass and inoperable status indication described in IEEE Std. 603, as endorsed by RG 1.153.

B. BRANCH TECHNICAL POSITION

The design criteria for bypass and inoperable status indication systems for ESFs should reflect the importance of providing accurate information for the operator and reducing the possibility for the indicating equipment to adversely affect the monitored safety systems. In developing the design criteria, the following should be considered:

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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)."

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1. The bypass indicators should be arranged to enable the operator to determine the status of each safety system and whether continued reactor operation is permissible.
2. When a protective function of a shared system can be bypassed, indication of that bypass condition should be provided in the control room of each affected unit.
3. The means by which the operator can cancel erroneous bypass indications, if provided, should be justified by demonstrating that the postulated cases of erroneous indications cannot be eliminated by another practical design.
4. Unless the indication system is designed in conformance with criteria established for safety systems, it should not be used to perform functions that are essential to safety. Administrative procedures should not require immediate operator action based solely on the bypass indications.
5. The indication system should be designed and installed in a manner that precludes the possibility of adverse effects on plant safety systems. Failure or bypass of a protective function should not be a credible consequence of failures occurring in the indication equipment, and the bypass indication should not reduce the required independence between redundant safety systems.
6. The indication system should include a capability of assuring its operable status during normal plant operation to the extent that the indicating and annunciating function can be verified.

C. REFERENCES

1. Regulatory Guide 1.47, "Bypassed and Inoperable Status Indication for Nuclear Power Plant Safety Systems."
2. Regulatory Guide 1.153, "Criteria for Power, Instrumentation, and Control Portions of Safety Systems."
3. IEEE Std. 603-1991, "Criteria for Safety Systems for Nuclear Power Generating Stations."

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.

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