



NUREG-0800

# U.S. NUCLEAR REGULATORY COMMISSION STANDARD REVIEW PLAN

## BRANCH TECHNICAL POSITION 7-8

### GUIDANCE FOR APPLICATION OF REGULATORY GUIDE 1.22

### REVIEW RESPONSIBILITIES

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

**Secondary** -- None

#### **A. Background**

#### **A-recent**

**Review Note:** The revision numbers of Regulatory Guides (RG) and the years of endorsed industry standards referenced in this branch technical position (BTP) are centrally maintained in Standard Review Plan (SRP) Section 7.1-T (Table 7-1). Therefore, the individual revision numbers of RGs (except RG 1.97) and years of endorsed industry standards are not shown in this BTP. References to industry standards incorporated by reference into regulation (IEEE Std 279-1971 and IEEE Std 603-1991) and industry standards that are not endorsed by the agency do include the associated year in this BTP. See Table 7-1 to ensure that the appropriate RGs and endorsed industry standards are used for the review.

Draft Revision 6 – August 2015

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### USNRC STANDARD REVIEW PLAN

This Standard Review Plan (SRP), NUREG-0800, has been prepared to establish criteria that the U.S. Nuclear Regulatory Commission (NRC) 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 SRP 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 (RG) 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants (LWR Edition)." Not all sections of RG 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 RG 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 [NRO\\_SRP@nrc.gov](mailto:NRO_SRP@nrc.gov).

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**A. BACKGROUND**

A previous application listed eight functions that are not tested while the reactor is operating at power. The applicant claimed that the periodic testing complied with Regulatory Guide (RG) 1.22, "Periodic Testing of Protection System Actuation Functions." RG 1.22 does make provisions for actuated equipment that is not tested during reactor operation, but it does not have provisions for excluding any portion of the protection system from the requirements of ~~clauses~~Clauses 4.9 and 4.10 of the Institute of Electrical and Electronics Engineers (IEEE-) Standard (Std) 279-1971, "Criteria for Protection Systems for Nuclear Power Generating Stations," or the safety system from the requirements of ~~clauses~~Clauses 5.7 and 6.5 of IEEE Std 603-1991, "IEEE Standard Criteria for Safety Systems for Nuclear Power Generating Stations."

Revision 5 - March 2007

**USNRC STANDARD REVIEW PLAN  
B. BRANCH TECHNICAL POSITION**

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~~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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~~Requests for single copies of SRP sections (which may be reproduced) should be made to the U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Reproduction and Distribution Services Section, or by fax to (301) 415-2289; or by email to DISTRIBUTION@nrc.gov. Electronic copies of this section are available through the NRC's public Web site at <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr0800/>, or in the NRC's Agencywide Documents Access and Management System (ADAMS), at <http://www.nrc.gov/reading-rm/adams.html>, under Accession # ML070550096.~~

**B. Branch Technical Position**

All portions of the protection and safety systems should be designed in accordance with IEEE

Std 279-1971 or IEEE Std 603-1991, as required by ~~10 Title 10 of the Code of Federal Regulations (10 CFR) 50.55a(h)~~, "Protection and Safety Systems." All actuated equipment that is not tested during reactor operation should be identified, and a discussion of how each conforms to the ~~provisions~~guidance of paragraph D.4 of RG 1.22 should be submitted. In addition to ~~compliance~~conformance with the ~~guidance in~~ RG 1.22, the review of this topic should also confirm that the proposed design and the justification for test intervals are consistent with the surveillance testing proposed as part of the plant technical specifications.

1. The protection system should satisfy the requirements of the General Design Criteria

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and Section 10 CFR 50.55a(h) of 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." 10 CFR 50.55a(h) requires compliance with IEEE Std 603-1991, and the correction sheet dated January 30, 1995. For nuclear power plants with construction permits issued before January 1, 1971, the applicant or licensee may elect to comply instead with their plant-specific licensing basis. For nuclear power plants with construction permits issued between January 1, 1971 and May 13, 1999, the applicant/licensee may elect to comply instead with the requirements stated in IEEE Std 279-1971. Standard Review Plan (SRP) Appendix 7.1-B provides guidance for reviewing systems against IEEE Std 279-1971. SRP Appendix 7.1-C provides guidance for reviewing systems against IEEE Std 603-1991.

**C. References**

**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."
3. RG 1.22, "Periodic Testing of Protection System Actuation Functions." Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, 1972.

**Regulatory Guide**

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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, and~~ were approved by the Office of Management and Budget, approval number 3150-0011, ~~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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~~The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid OMB control number.~~

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**BTP 7-8**  
**Description of Changes**

**BTP 7-8, "Guidance for Application of Regulatory Guide 1.22"**

This ~~2~~-BTP Section affirms the technical accuracy and adequacy of the guidance previously provided in BTP 7-8, Revision 5, dated March 2007. See ADAMS Accession Number ML070550096.

The main purpose of this update is to incorporate the revised software Regulatory Guides and the associated endorsed standards. For organizational purposes, the revision number of each Regulatory Guide and year of each endorsed standard is now listed in one place, Table 7-1. As a result, revisions of Regulatory Guides and years of endorsed standards were removed from this section, if applicable. For standards that are incorporated by reference into regulation (IEEE Std 279-1971 and IEEE Std 603-1991) and standards that have not been endorsed by the agency, the associated revision number or year is still listed in the discussion. Additional changes were editorial.

Part of 10 CFR was reorganized due to a rulemaking in the fall of 2014. Quality requirement discussions in the former 10 CFR 50.55a(a)(1) were moved to 10 CFR 50.54(jj) and 10 CFR 50.55(i). The incorporation by reference language in the former 10 CFR 50.55a(h)(1) was moved to 10 CFR 50.55a(a)(2). There were no changes either to 10 CFR 50.55a(h)(2) or 10 CFR 50.55a(h)(3).

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