

December 18, 1998

FOR: The Commissioners

FROM: William D. Travers /s/
Executive Director for Operations

SUBJECT: CHANGES TO PARAGRAPH (h) OF 10 CFR Part 50.55a, "CODES AND STANDARDS"

PURPOSE:

To request Commission approval to issue a final rule to incorporate by reference a national consensus standard in 10 CFR 50.55a(h) that establishes minimum functional and design requirements for the power, instrumentation, and control portions of safety systems for nuclear power plants.

CATEGORY

This paper covers a routine matter.

BACKGROUND

In 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," section 50.55a (h) requires that the protection systems in nuclear power plants meet the requirements set forth in the Institute of Electrical and Electronics Engineers (IEEE) Std. 279-1971, "Criteria for Protection Systems for Nuclear Generating Stations." Thus, this standard is part of the current licensing basis for many operating nuclear power plants. However, IEEE Std. 279-1971 has been withdrawn by IEEE because it has been superseded by IEEE Std. 603-1991, "Criteria for Safety Systems for Nuclear Power Generating Stations." IEEE Std. 603-1991 includes the criteria in IEEE Std. 279-1971 and also includes guidelines for design of digital systems.

On October 17, 1997 (62 FR 53932), NRC published in the *Federal Register* a notice of direct final rule and a proposed rule to amend its regulations to incorporate by reference IEEE Std. 603-1991 for power, instrumentation, and control portions of safety systems in nuclear power plants. This rule was withdrawn on December 23, 1997 (62 FR 66977), because the NRC received significant adverse comments. The NRC considered these comments, revised the proposed rule, and on April 23, 1998, reissued the rule to give the public another opportunity to comment (63 FR 20136). The NRC received 16 public comment letters. The significant comments on the proposed rule are discussed on page 4 of the Federal Register Notice ([Attachment 1](#)).

DISCUSSION

The issuance of this final rule is consistent with the provisions of the National Technology Transfer and Advancement Act of 1995, P.L. 104-113, which encourages Federal regulatory agencies to consider adopting consensus industry standards as an alternative to de novo agency development of standards affecting an industry. This action is also consistent with the NRC policy of evaluating the latest versions of national consensus standards in terms of their suitability for endorsement by regulations or regulatory guides.

The NRC staff believes that newer consensus standards reflect progress and the current "state of the practice" of the technology. Specifically, IEEE Std. 603-1991 is a major improvement over IEEE Std. 279-1971. IEEE Std. 279-1971 provides basic criteria for protection systems, and these criteria remain unchanged in IEEE Std. 603-1991. If a licensee proposes to replace an existing analog protection system with a digital system, IEEE Std. 279-1971 provides no specific guidance. Therefore, licensees are likely to consider the guidance in IEEE Std. 603-1991 and other standards that address digital system design. Accordingly, the NRC has revised the rule to make compliance with the requirements of IEEE Std. 603-1991 voluntary for operating nuclear power plants. Further, IEEE Std. 279-1971 supplemented by the current criteria in Chapter 7 of the Standard Review Plan provides licensees with sufficient guidance on the design of digital systems. This guidance is equivalent to that in IEEE Std. 603-1991. Thus, the final rule provides an option for complying with the new standard for changes to existing power and instrumentation and control portions of protection systems. This is not considered a backfit because the adoption of IEEE Std. 603-1991 by current licensees would be voluntary. Therefore, any further discussion of backfit is unnecessary. Thus, this final rule appears to be noncontroversial.

This final rule would mandate the use of IEEE Std. 603-1991 (including the correction sheet dated January 30, 1995) for safety systems for future power plants, including final design approvals, design certifications, and combined licensees under 10 CFR Part 52.

COORDINATION

The Office of the Chief Information Officer has reviewed the final rule for information technology and information management implications and concurs in it. The Chief Financial Officer has no comments on this final rule. Both the ACRS and CRGR support the proposed action. The Office of the General Counsel has no legal objection.

RECOMMENDATION

That the Commission

1. Approve for publication in the Federal Register the final rule amending 10 CFR 50.55a(h) ([Attachment 1](#)).
2. Note that

- a. The final rule will become effective 30 days after the date of publication in the *Federal Register*.
- b. The rule does not constitute a "major rule" for purposes of the Small Business Regulatory Endorsement Fairness Act; therefore, it is not subject to the 60-day congressional review period prior to effectiveness. However, the appropriate congressional committees will be informed of this action ([Attachment 2](#))
- c. A regulatory analysis is included ([Attachment 3](#)).
- d. An Environmental Assessment and finding of no significant impact is included ([Attachment 4](#)).
- e. Approval by the Director of the Federal Register will be obtained for incorporating by reference a national consensus standard ([Attachment 5](#))
- f. The associated Regulatory Guide 1.153, "Criteria for Safety Systems," will be revised to be consistent with this rule within 90 days of publication of this rule in the *Federal Register*.

William D. Travers
Executive Director for Operations

CONTACT: Satish K. Aggarwal
301- 415-6005

Attachments:

1. *Federal Register* Notice of Amendment: Final Rule
2. Draft Congressional Letters
3. Regulatory Analysis
4. Environmental Assessment
5. Draft Letter to Director of *Federal Register*

ATTACHMENT 1

[7590-01-P]

NUCLEAR REGULATORY COMMISSION
10 CFR Part 50
RIN 3150-AF96
Codes and Standards: IEEE
National Consensus Standard

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission is amending its regulations to incorporate by reference IEEE Std. 603-1991, a national consensus standard for power, instrumentation, and control portions of safety systems in nuclear power plants. Use of IEEE Std. 603-1991 is mandatory for new nuclear power plants and is voluntary for existing nuclear power plants. This action is necessary to endorse the latest version of this national consensus standard in NRC's regulations because IEEE has withdrawn IEEE Std. 279-1971.

EFFECTIVE DATE: The final rule is effective on (30 days after publication in the Federal Register). The incorporation by reference of IEEE Std. 603-1991 is approved by the Director of the Federal Register as of (30 days after publication).

FOR FURTHER INFORMATION CONTACT: Satish K. Aggarwal, Senior Program Manager, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Telephone: 301-415-6005, Fax: 301-415-5074, E-mail: SKA@NRC.GOV.

SUPPLEMENTARY INFORMATION:

- o [Significant Comments on the Proposed Rule](#)
- o [Consensus Standards](#)
- o [Finding of No Environmental Impact: Availability of Environmental Assessment](#)

- o Paperwork Reduction Act Statement
- o Public Protection Notification
- o Regulatory Analysis
- o Regulatory Flexibility Certification
- o Backfit Analysis
- o Small Business Regulatory Enforcement Fairness Act
- o List of Subjects in 10 CFR Part 50
- PART 50--DOMESTIC LICENSING OF PRODUCTION AND UTILIZATION FACILITIES
 - o 50.55a Codes and standards.

10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," 50.55a(h) requires that the protection systems in nuclear power plants meet the requirements stated in IEEE Std. 279, "Criteria for Protection Systems for Nuclear Power Generating Stations," in effect on the formal docket date of the application. However, IEEE has withdrawn IEEE Std. 279-1971 and has superseded it with IEEE Std. 603-1991, "Criteria for Safety Systems for Nuclear Power Generating Stations." On April 23, 1998 (63 FR 20136), the NRC published a proposed rule in the *Federal Register* that would amend its regulations to incorporate IEEE Std. 603-1991 for power, instrumentation, and control portions of safety systems. This action is consistent with the provisions of the National Technology Transfer and Advancement Act of 1995, Pub. L. 104-113, which encourages Federal regulatory agencies to consider adopting industry consensus standards as an alternative to *de novo* agency development of standards affecting an industry. This action is also consistent with the NRC policy of evaluating the latest versions of national consensus standards in terms of their suitability for endorsement by regulations or regulatory guides.

Currently, 10 CFR 50.55a(h) specifies that "protection systems" for plants with construction permits issued after January 1, 1971, must meet the requirements in IEEE Std. 279 in effect on the formal docket date of the application for a construction permit. IEEE Std. 279-1971 states that a "protection system" encompasses all electric and mechanical devices and circuitry (from sensors to actuation device input terminals) involved in generating those signals associated with the protective function. These signals include those that actuate reactor trip and that, in the event of a serious reactor accident, actuate engineered safety features (ESFs), such as containment isolation, core spray, safety injection, pressure reduction, and air cleaning. "Protective function" is defined in IEEE Std. 279-1971 as "the sensing of one or more variables associated with a particular generating station condition, signal processing, and the initiation and completion of the protective action at values of the variables established in the design bases."

IEEE Std. 603-1991 uses the term "safety systems" rather than "protection systems" to define its scope. A "safety system" is defined in IEEE Std. 603-1991 as "a system that is relied upon to remain functional during and following design basis events to ensure: (i) The integrity of the reactor coolant pressure boundary, (ii) the capability to shut down the reactor and maintain it in a safe shutdown condition, or (iii) the capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposures comparable to the 10 CFR Part 100 guidelines." A "safety function" is defined in IEEE Std. 603-1991 as "one of the processes or conditions (for example, emergency negative reactivity insertion, post-accident heat removal, emergency core cooling, post-accident radioactivity removal, and containment isolation) essential to maintain plant parameters within acceptable limits established for a design basis event."

The NRC recognizes that "protection systems" are a subset of "safety systems." Safety system is a broad-based and all-encompassing term, embracing the protection system in addition to other electrical systems. Thus, the term "protection system" is not synonymous with the term "safety system." The final rule is not intended to change the scope of the systems covered in the final safety analysis report (FSAR) for currently operating nuclear power plants.

This final rule would mandate the use of IEEE Std. 603-1991 (including the correction sheet dated January 30, 1995) for safety systems for future nuclear power plants, including final design approvals, design certifications, and combined licenses under 10 CFR Part 52. Current licensees may continue to meet the requirements stated in the edition or revision of IEEE Std. 279 in effect on the formal date of their application for a construction permit or may, at their option, use IEEE Std. 603-1991, if they comply with all applicable requirements for making changes to their licensing basis.

SIGNIFICANT COMMENTS ON THE PROPOSED RULE

The NRC received 16 public comment letters. Copies of these letters are available for public inspection, and copying for a fee, at the NRC's Public Document Room. The major issues raised by the commenters and the NRC staff responses to these issues are as follows:

(1) Ambiguity in the definition of "System-Level Replacements."

Issue: The term "system-level replacement" is not clearly defined. The rule would create a dual licensing basis for plant protection systems.

Response: "System-level replacement" for a protection system must involve complete replacement from the process sensors to the actuation signals used for the initiation of execute features (e.g., reactor trip system trip breaker, scram solenoid-operated valves, and ESF motive equipment operation). A licensee's current licensing basis applies when defining protection system boundaries. A licensee's protection systems are typically defined and discussed in Final Safety Analysis Report Sections 7.1, 7.2, and 7.3. The decision to establish and manage a dual licensing basis is voluntary, not mandatory. Reference to system-level replacements has been removed in this final rule because the compliance with the requirements of IEEE Std. 603-1991 is voluntary for changes to protection systems.

(2) Referenced Standards.

Issue: The NRC staff states that the other IEEE standards referenced in IEEE Std. 603-1991 will not by themselves become mandatory. However, this position was not restated in the rule itself.

Response: As a matter of law, the other IEEE standards referenced in IEEE Std. 603-1991 are not rulemaking requirements, inasmuch as (i) Section 50.55a does not contain language explicitly requiring the use of the other IEEE standards referenced in IEEE Std. 603-1991, and (ii) the other IEEE standards referenced in IEEE Std. 603-1991 have not been approved for incorporation by reference by the Office of Federal Register.

(3) Backfit Analysis.

Issue: Incorporating the additional requirements of IEEE Std. 603-1991 as a binding regulation would impose a change to the current licensing basis and constitutes a backfit.

Response: The NRC has revised the rule to make compliance with the requirements of IEEE Std. 603-1991 voluntary. Current licensees may continue to satisfy NRC regulations by meeting the requirements stated in the edition or revision of IEEE Std. 279 in effect on the formal date of their application for a construction permit. Therefore, any further discussion of backfit is unnecessary.

CONSENSUS STANDARDS

The National Technology Transfer Act of 1995, Pub. L. 104-113, requires that Federal agencies use technical standards that are developed or adopted by voluntary consensus standards bodies unless the use of these standards is inconsistent with applicable law or otherwise impractical. In this final rule, the NRC is using the following voluntary consensus standards, IEEE Std. 603-1991, including the correction sheet dated January 30, 1995. No alternative voluntary consensus standard(s) were identified for use in this final rule.

FINDING OF NO ENVIRONMENTAL IMPACT: AVAILABILITY OF ENVIRONMENTAL ASSESSMENT

The NRC has determined under the National Environmental Policy Act of 1969, as amended, and the NRC's regulations in subpart A of [10 CFR Part 51](#), that because this final rule would not be a major Federal action significantly affecting the quality of the human environment, an environmental impact statement is not required. The NRC has prepared an environmental assessment supporting this finding of no significant environmental impact.

The NRC had sent a copy of the environmental assessment and a copy of the *Federal Register* notice to every State liaison officer and requested their comments on the environmental assessment. No comments were received. The environmental assessment is available for inspection, and copying for a fee, at the NRC Public Document Room, 2120 L Street, NW., Washington, D.C. Also, the NRC has committed itself to complying in all its actions with Presidential Executive Order 12898, "Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations" (February 11, 1994). Therefore, the NRC also has determined that there are no disproportionate, high, and adverse impacts on minority and low-income populations. The NRC uses the following working definition of environmental justice: Environmental justice means the fair treatment and meaningful involvement of all people--- regardless of race, ethnicity, culture, income, or educational level---with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

PAPERWORK REDUCTION ACT STATEMENT

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501, *et seq.*). Existing requirements were approved by the Office of Management and Budget, Approval No. 3150-0011.

PUBLIC PROTECTION NOTIFICATION

If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

REGULATORY ANALYSIS

The NRC has prepared a regulatory analysis that shows this amendment does not impose any new requirements or costs on current licensees because compliance with the requirements of IEEE Std. 603-1991 is voluntary. The regulatory analysis is available for inspection, and copying for a fee, in the NRC Public Document Room, 2120 L Street NW., Washington, DC.

REGULATORY FLEXIBILITY CERTIFICATION

As required by the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)), the NRC certifies that this rule does not have a significant economic impact on small entities. This rule affects only the operation of nuclear power plants. The companies that own these plants do not fall within the scope of the definition of "small entities" stated in the Regulatory Flexibility Act or the small business size standards adopted by the NRC ([10 CFR 2.810](#)). Because these companies are dominant in their service areas, this rule does not fall within the purview of the act.

BACKFIT ANALYSIS

The final rule requires applicants and holders of new construction permits, new operating licenses, new final design certifications, and combined licenses to comply with IEEE Std. 603-1991 (including the correction sheet dated January 30, 1995). Conformance to IEEE Std. 603-1991 for changes to protection systems in existing operating plants is voluntary.

The backfit rule was not intended to apply to regulatory actions that change expectations of prospective applicants and, therefore, the backfit rule does not apply to the portion of the rule applicable to new construction permits, new operating licenses, new final design approvals, new design certifications, and combined licenses.

The NRC staff believes that newer consensus standards reflect progress and the current "state of the practice" of the technology. Specifically, IEEE Std. 603-1991 is a major improvement over IEEE Std. 279-1971. IEEE Std. 279-1971 provides basic criteria for protection systems, which remain unchanged in IEEE Std. 603-1991. If a licensee proposes to replace an existing analog protection system with a digital system, IEEE Std. 279-1971 provides no specific guidance. Therefore, licensees are likely to consider the guidance in IEEE Std. 603-1991 and other standards that address digital system design. The NRC staff encourages the use of digital technology and encourages the use of new standards such as IEEE Std. 603-1991. Thus, the final rule provides an option for complying with the new standard for changes to existing power and instrumentation and control portions of protection systems. This is not considered a backfit because the adoption of IEEE Std. 603-1991 would be voluntary.

In summary, the NRC has determined that the backfit rule, [10 CFR 50.109](#), does not apply to this rule because it does not impose any backfits as defined in 10 CFR 50.109(a)(1). Therefore, a backfit analysis has not been prepared for this final rule.

SMALL BUSINESS REGULATORY ENFORCEMENT FAIRNESS ACT

In accordance with the Small Business Regulatory Enforcement Fairness Act of 1996 the NRC has determined that this action is not a major rule and has verified this determination with the Office of Information and Regulatory Affairs of OMB.

LIST OF SUBJECTS IN 10 CFR PART 50

Antitrust, Classified information, Criminal penalties, Fire protection, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, and Reporting and recordkeeping requirements.

For the reasons stated in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 552 and 553, the NRC is adopting the following amendment to [10 CFR Part 50](#).

PART 50--DOMESTIC LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

1. The authority citation for Part 50 continues to read as follows:

AUTHORITY: Secs. 102, 103, 104, 105, 161, 182, 183, 186, 189, 68 Stat. 936, 937, 938, 948, 953, 954, 955, 956, as amended, sec. 234, 83 Stat. 1244, as amended (42 U.S.C. 2132, 2133, 2134, 2135, 2201, 2232, 2233, 2236, 2239, 2282); secs. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846).

Section 50.7 also issued under Pub. L. 95-601, sec. 10, 92 Stat. 2951 (42 U.S.C. 5851). Section 50.10 also issued under secs. 101, 185, 68 Stat. 955 as amended (42 U.S.C. 2131, 2235), sec. 102, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332). Sections 50.13, and 50.54(dd), and 50.103 also issued under sec. 108, 68 Stat. 939, as amended (42 U.S.C. 2138), Sections 50.23, 50.35, 50.55, and 50.56 also issued under sec. 185, 68 Stat. 955 (42 U.S.C. 2235), Sections 50.33a, 50.55a and Appendix Q also issued under sec. 102, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332). Sections 50.34 and 50.54 also issued under sec. 204, 88 Stat. 1245 (42 U.S.C. 5844). Sections 50.58, 50.91, and 50.92 also issued under Pub. L. 97-415, 96 Stat. 2073 (42 U.S.C. 2239). Section 50.78 also issued under sec. 122, 68 Stat. 939 (42 U.S.C. 2152). Sections 50.80-50.81 also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234). Appendix F also issued under sec. 187, 68 Stat. 955 (42 U.S.C. 2237).

2. In 50.55a, paragraph (h) is revised to read as follows:

50.55A CODES AND STANDARDS.

* * * * *

(h) Protection and Safety Systems. (1) IEEE Std. 603-1991, including the correction sheet dated January 30, 1995, which is referenced in paragraphs (h)(2) and (h)(3) of this section, is approved for incorporation by reference by the Director of the Office of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies of IEEE Std. 603-1991 may be purchased from the Institute of Electrical and Electronics Engineers Service Center, 445 Hoes Lane, Piscataway, NJ 08855. The standard is also available for inspection at the NRC Library, 11545 Rockville Pike, Rockville, Md; and at the Office of the Federal Register, 800 North Capitol Street, NW., Suite 700, Washington, D.C. IEEE Std. 279, which is referenced in paragraph (h)(2) of this section, was approved for incorporation by reference by the Director of the Office of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies of IEEE Std. 279 are also available as indicated for IEEE Std. 603-1991.

(2) Protection systems. For nuclear power plants with construction permits issued after January 1, 1971, but before (insert the effective date of this document), protection systems must meet the requirements stated in either IEEE Std. 279, "Criteria for Protection Systems for Nuclear Power Generating Stations," or in IEEE Std. 603-1991, "Criteria for Safety Systems for Nuclear Power Generating Stations," and the correction sheet dated January 30, 1995. For nuclear power plants with construction permits issued before January 1, 1971, protection systems must be consistent with their licensing basis or may meet the requirements of IEEE Std. 603-1991 and the correction sheet dated January 30, 1995.

(3) Safety systems. For construction permits, final design approvals, design certifications, and combined licenses issued on or after (insert the effective date of this document), safety systems must meet the requirements stated in IEEE Std. 603-1991 and the correction sheet dated January 30, 1995.

Dated at Rockville, Maryland, this _____ day of _____, 1998.

For the Nuclear Regulatory Commission.

John C. Hoyle,
Secretary of the Commission.

ATTACHMENT 2

The Honorable Al Gore
President of the United States Senate
Washington, D.C. 20510

Dear Mr. President:

Pursuant to Subtitle E of the Small Business Regulatory Enforcement Fairness Act of 1996, 5 U.S.C. 801, the Nuclear Regulatory Commission (NRC) is submitting a final rule that will amend the Commission's rules in 10 CFR Part 50.55a. Specifically, Paragraph (h) will be amended to incorporate by reference Institute of Electrical & Electronics Engineers (IEEE) Std. 603-1991, a national consensus standard for power, instrumentation, and control portions of safety systems in nuclear power plants. This action is necessary to endorse the latest version of this national consensus standard in the NRC's regulations and to replace the IEEE standard currently endorsed in the NRC's regulations that has been withdrawn by the IEEE. Compliance with IEEE Std. 603-1991 by the current licensees would be voluntary.

We have determined that this is not a "major rule" as defined in 5 U.S.C. 804(2) and have confirmed this determination with the Office of Management and Budget.

Enclosed is a copy of the final rule that is being transmitted to the Federal Register for publication. Also, enclosed is a copy of the Regulatory Analysis for this final rule. The final rule will become effective on (30 days after publication).

Sincerely,
Dennis K. Rathbun, Director
Office of Congressional Affairs

Enclosures: As stated

The Honorable Newt Gingrich
Speaker of the United States
House of Representatives
Washington, D.C. 20515
Dear Mr. Speaker:

Pursuant to Subtitle E of the Small Business Regulatory Enforcement Fairness Act of 1996, 5 U.S.C. 801, the Nuclear Regulatory Commission (NRC) is submitting a final rule that will amend the Commission's rules in 10 CFR Part 50.55a. Specifically, Paragraph (h) will be amended to incorporate by reference Institute of Electrical & Electronics Engineers (IEEE) Std. 603-1991, a national consensus standard for power, instrumentation, and control portions of safety systems in nuclear power plants. This action is necessary to endorse the latest version of this national consensus standard in the NRC's regulations and to replace the IEEE standard currently endorsed in the NRC's regulations that has been withdrawn by the IEEE. Compliance with IEEE Std. 603-1991 by the current licensees would be voluntary.

We have determined that this is not a "major rule" as defined in 5 U.S.C. 804(2) and have confirmed this determination with the Office of Management and Budget.

Enclosed is a copy of the final rule that is being transmitted to the Federal Register for publication. Also, enclosed is a copy of the Regulatory Analysis for this final rule. The final rule will become effective on (30 days after publication).

Sincerely,
Dennis K. Rathbun, Director
Office of Congressional Affairs

Enclosures: As stated

The Honorable Dan Shaefer, Chairman
Subcommittee on Energy and Power
Committee on Commerce
United States House of Representatives
Washington, D.C. 20510
Dear Mr. Chairman:

The NRC has sent to the Office of the Federal Register for publication, the enclosed amendment to the Commission's rules in 10 CFR Part 50.55a(h). This rule will be amended to incorporate by reference Institute of Electrical & Electronics Engineers (IEEE) Std. 603-1991, a national consensus standard for power, instrumentation, and control portions of safety systems in nuclear power plants. This action is necessary to endorse the latest version of this national consensus standard in the NRC's regulations and to replace an IEEE standard currently endorsed in the NRC's regulations which has been withdrawn by the IEEE. Compliance with IEEE Std. 603-1991 by the current licensees would be voluntary.

The Commission is issuing this final rule with an effective date of (30 days after publication).

Sincerely,
Dennis K. Rathbun, Director

Enclosure: As stated

cc: Senator Bob Graham

The Honorable James M. Inhofe, Chairman
Subcommittee on Clean Air, Wetlands, Private
Property and Nuclear Safety
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510
Dear Mr. Chairman:

The NRC has sent to the Office of the Federal Register for publication, the enclosed amendment to the Commission's rules in 10 CFR Part 50.55a(h). This rule will be amended to incorporate by reference Institute of Electrical & Electronics Engineers (IEEE) Std. 603-1991, a national consensus standard for power, instrumentation, and control portions of safety systems in nuclear power plants. This action is necessary to endorse the latest version of this national consensus standard in the NRC's regulations and to replace an IEEE standard currently endorsed in the NRC's regulations which has been withdrawn by the IEEE. Compliance with IEEE Std. 603-1991 by the current licensees would be voluntary.

The Commission is issuing this final rule with an effective date of (30 days after publication).

Sincerely,
Dennis K. Rathbun, Director
Office of Congressional Affairs

Enclosure: As stated

cc: Senator Bob Graham

Mr. Robert Murphy
General Counsel
General Accounting Office
Room 7175
441 G Street, NW
Washington, D.C. 20548
Dear Mr. Murphy:

Pursuant to Subtitle E of the Small Business Regulatory Enforcement Fairness Act of 1996, 5 U.S.C. 801, the Nuclear Regulatory Commission (NRC) is submitting a final rule that will amend the Commission's rules in 10 CFR Part 50.55a. Specifically, Paragraph (h) will be amended to incorporate by reference Institute of Electrical & Electronics Engineers (IEEE) Std. 603-1991, a national consensus standard for power, instrumentation, and control portions of safety systems in nuclear power plants. This action is necessary to endorse the latest version of this national consensus standard in the NRC's regulations, and replace in IEEE standard currently endorsed in the NRC's regulations which has been withdrawn by the IEEE. Compliance with IEEE Std. 603-1991 by the current licensees would be voluntary.

We have determined that this is not a "major rule" as defined in 5 U.S.C. 804(2). We have confirmed this determination with the Office of Management and Budget.

Enclosed is a copy of the final rule which is being transmitted to the Federal Register for publication. Also, enclosed is a copy of the Regulatory Analysis for this final rule. The final rule will become effective on (30 days after publication).

Sincerely,
Dennis K. Rathbun, Director
Office of Congressional Affairs

Enclosures: As stated

- *1. Problem:*
- *2. Alternative Approaches:*
- *3. Value and Impact:*
- *4. Conclusion:*
- *5. Decisional Rationale:*

1. PROBLEM:

The NRC regulations currently incorporate by reference an obsolete national consensus standard, which was withdrawn by IEEE. This standard, which was replaced by IEEE Std. 603-1991 (and the correction sheet dated January 30, 1995), represents a significant improvement over IEEE Std. 279-1971. The latest standard provides clear explanations to the general criteria stated in the earlier standard. NRC proposes to update 10 CFR 50.55a(h) to reference IEEE Std. 603-1991 in order to reflect current technology.

2. ALTERNATIVE APPROACHES:

The following are alternative approaches to the action described in the final rule:

- (i) Take no action.
- (ii) Prescribe a detailed approach.

The first alternative, taking no action, would mean that the NRC would continue to rely upon an obsolete standard. This will not utilize the current technology and will not benefit from the operating experience gained over the past 20 years. This option is not acceptable, because the criteria in IEEE Std. 603-1991 will provide a means of promoting safe practices for design and evaluation of future nuclear power plants' safety systems performance and reliability.

The second alternative, prescribing a detailed approach, would impose an unmanageable burden on the NRC technical staff, particularly in an era of declining budgets and fewer resources. It also overlooks the benefits derived from the consensus process and the technical experience and expertise in the IEEE technical committees. Therefore, this alternative is not acceptable.

3. VALUE AND IMPACT:

IEEE Std. 603-1991 would apply to future nuclear power plants, including final design approvals, design certifications, and combined licenses under 10 CFR Part 52.

Issuing the proposed amendment is consistent with the NRC policy of evaluating the latest versions of national consensus standards in terms of their suitability for endorsement. NRC regulations or regulatory guides or both should reflect current technology.

It is in the interest of public health and safety for the NRC to adopt IEEE Std. 603-1991. By presenting clearer guidance on the criteria for safety systems and including criteria on related issues, IEEE Std. 603-1991 offers an improvement to health and safety by reducing the potential for misunderstanding the criteria for safety systems.

It is expected that the final rule will reduce the probability or consequences of an accident.

For operating nuclear power plants, the final rule provides an option for complying with the new standard for changes to existing power and instrumentation and control portions of protection systems. This is not considered a backfit because the adoption of IEEE Std. 603-1991 is voluntary.

4. CONCLUSION:

Endorsement of IEEE Std. 603-1991 addresses the stated problems and minimizes the NRC staff resources that would be expected in developing design certification "from scratch" for new advanced nuclear power plants. This action is consistent with the provisions of the National Technology Transfer and Advancement Act of 1995, Pub. L. 104-113.

5. DECISIONAL RATIONALE:

On the basis of no impact and highest value for problem solution capability, the alternative of endorsing IEEE Std. 603-1991 as presented in the final rule has been chosen. Further, the existence of already approved staff guidance on digital system implementation provided in Standard Review Plan, NUREG-0800, Chapter 7 as well as endorsement of IEEE Std.603-1991 in Regulatory Guide 1.153 provides documentation of the staff expectations for the design of digital system modifications, and, therefore, makes the recommended alternative for the final rule appropriate.

**ENVIRONMENTAL ASSESSMENT AND FINDING
OF NO SIGNIFICANT IMPACT ENVIRONMENTAL ASSESSMENT**

- *Identification of Rulemaking:*
- *The Need for the Rulemaking:*
- *Environmental Impact of the Rulemaking:*
- *Alternatives to the Amendment:*
- *Alternative Use of Resources:*
- *States Consulted and Sources Used:*

IDENTIFICATION OF RULEMAKING:

The NRC is amending 10 CFR 50.55a, which defines the requirements for applying national consensus standards. Paragraph (h) of this section currently requires that protection systems in nuclear power plants meet the requirements stated in IEEE Std. 279, "Criteria for Protection Systems for Nuclear Generating Stations." However, IEEE has withdrawn IEEE Std. 279-1971, which is now superseded by IEEE Std. 603-191, "Criteria for Safety Systems for Nuclear Power Generating Stations."

This amendment to 10 CFR 50.55a(h) requires that for construction permits, combined licenses, and design certifications, issued on or after January 1, 1999, the safety systems meet the requirements stated in IEEE Std. 603-1991. The licensees of current operating plants will have the option of either meeting IEEE Std. 279-1971 or IEEE Std. 603-1991 for changes to protection systems.

THE NEED FOR THE RULEMAKING:

The current regulation, 10 CFR 50.55a(h), is obsolete because it incorporates by reference IEEE Std. 279, which has been withdrawn by IEEE. NRC proposes to update this reference to a national consensus standard to reflect current technology. The NRC has concluded that IEEE Std. 603-1991 is a significant improvement over IEEE Std. 279-1971. The latest standard provides clear explanations of the general criteria given in the earlier standard. It also includes criteria for shared systems and covers considerations of human factors, clarification of the criteria for interaction between sense and command features and other systems, and clarifications of the design-basis event requirements for critical points in time or plant conditions.

Thus, it is in the interest of maintaining public health and safety for the NRC to adopt IEEE Std. 603-1991. By providing clearer guidance on the criteria for safety systems, and by including criteria on related issues, IEEE Std. 603-1991 offers an improvement to health and safety by reducing the potential for misunderstanding the criteria for safety systems.

ENVIRONMENTAL IMPACT OF THE RULEMAKING:

The NRC has completed its evaluation of the final rule and concludes that the criteria contained in IEEE Std. 603-1991 will present a means of promoting safe practices for design and evaluation of safety systems performance and reliability by giving clear guidance for criteria for safety systems. Thus, it is expected that the final rule will reduce the probability or consequences of an accident. The NRC also concludes that the final rule will not affect the amount and type of effluent that may be released off site and that there should be no significant increase in individual or cumulative occupational radiation exposure.

Accordingly, the NRC concludes that this final rule will result in no significant radiological environmental impact.

The final rule does not affect non-radiological plant effluents and has no other environmental impact. Therefore, the NRC concludes that there are no significant non-radiological environmental impacts associated with this amendment.

ALTERNATIVES TO THE AMENDMENT:

One alternative to incorporating by reference into NRC regulations the updated IEEE Std. 603-1991 would be to take no action. This would mean that the NRC would continue to rely upon an obsolete industry standard, which has been withdrawn by IEEE. This option will not utilize the current state of technology and will not benefit from the operating experience gained over the past years. Because the improvements in IEEE Std. 603-1991 can reduce the probability or consequences of an accident with no adverse impact on the environment or occupational exposure, the NRC concluded that the proposed alternative should not be adopted.

A second alternative would be to incorporate the entire text of IEEE Std. 603-1991 into the NRC regulations. This approach is not practical.

ALTERNATIVE USE OF RESOURCES:

This action does not involve the use of any resources not previously considered in other rulemakings.

STATES CONSULTED AND SOURCES USED:

The NRC had previously mailed the environmental assessment to the States for their comments.