



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
WASHINGTON, DC 20555 - 0001

ACRSR-2183

March 28, 2006

Luis A. Reyes  
Executive Director of Operations  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

SUBJECT: DRAFT FINAL REVISION 4 TO REGULATORY GUIDE 1.97, "CRITERIA FOR ACCIDENT MONITORING INSTRUMENTATION FOR NUCLEAR POWER PLANTS"

Dear Mr. Reyes:

During the 530th meeting of the Advisory Committee on Reactor Safeguards, March 9-11, 2006, we reviewed draft final Revision 4 to Regulatory Guide 1.97, "Criteria for Accident Monitoring Instrumentation for Nuclear Power Plants." During our review, we had the benefit of discussions with representatives of the NRC staff and the documents referenced.

#### CONCLUSIONS AND RECOMMENDATIONS

1. Revision 4 to Regulatory Guide 1.97 should not be issued in its present form.
2. The staff should revise Regulatory Position 1 to allow licensees to adopt the IEEE 497-2002 Standard to modify individual accident monitoring instruments without a complete analysis of all accident monitoring instrumentation.
3. We agree that licensees should not be allowed to use the IEEE 497-2002 Standard to eliminate or reclassify accident monitoring instrumentation required by previous editions of this Standard unless Revision 4 to Regulatory Guide 1.97 is adopted in its entirety.

#### DISCUSSION

Draft final Revision 4 to Regulatory Guide 1.97 endorses, with certain exceptions, IEEE 497-2002, "IEEE Standard Criteria for Accident Monitoring Instrumentation for Nuclear Power Generating Stations." IEEE Standard 497-2002 supersedes IEEE 497-1981 and IEEE 497-1983, both of which are now inactive standards. This Standard provides a consolidated source of post-accident monitoring requirements and the associated bases for a new generation of advanced nuclear plant designs. This Standard also contains appropriate guidance and a flexible basis for making changes to such systems in operating plants. In addition to incorporating requirements from previous editions of this Standard, Revision 4 to Regulatory Guide 1.97 is designed to consider the current state-of-the-art digital design technology for accident monitoring displays, and incorporates user experience and feedback. This Standard addresses some important aspects of the design, installation, and qualification of digital technology for accident monitoring instrumentation.

The staff has reviewed this Standard and, after consideration of public comments, endorsed it, subject to eight regulatory positions. The staff's positions are technically sound. However, the staff has adopted a position that could frustrate the application of this Standard to modifying and upgrading portions of the accident monitoring instrumentation in existing plants.

Regulatory Position (1) states: "If a current operating reactor licensee voluntarily converts to the criteria in Revision 4 of this guide, the licensee should perform the conversion on the plant's entire accident monitoring program to ensure a complete analysis."

In this position, the staff sets forth its intentions with regard to the applicability of IEEE Standard 497-2002 to current operating reactors. Clause 1.1 of IEEE Standard 497-2002 states that the Standard is intended for new plants, although current plants may find its guidance useful in performing design-basis evaluations or implementing design modifications.

In Revision 4 to Regulatory Guide 1.97, the staff states that conversion means adapting the plant's entire accident monitoring program from the current licensing basis (Revision 2 or 3 of Regulatory Guide 1.97), to the guidance in Revision 4. This adaptation could include physical changes (e.g., replacing an instrument), licensing changes (e.g., technical specification changes), or both for each variable. The staff also recognizes that Revisions 3 and 4 of this Regulatory Guide differ in several ways, including variable type definitions and associated criteria, removal of design and qualification categories, removal of prescriptive tables of monitored variables, analysis required to produce the necessary design-basis documentation, and related changes in licensing basis and/or commitments. These differences could involve modifications to existing instrumentation and could impose unnecessary regulatory burden on current operating reactor licensees, inhibiting the adoption of the IEEE 497-2002 Standard.

Regulatory Position 1 is too restrictive. In the case where a licensee desires to upgrade a portion of its accident monitoring instrumentation, the licensee should be allowed to apply the IEEE 497-2002 Standard to perform such upgrades without being required to perform a complete analysis of the entire set of accident monitoring instruments at the plant.

We agree that in some cases where a licensee may want to eliminate or reclassify an instrument (variable) from its list of accident monitoring variables, the licensee should then be required to adopt the IEEE 497-2002 Standard in its entirety. This will ensure that operators have the necessary information to mitigate any accident, consistent with the Emergency Operating Procedures, Abnormal Operating Procedures, and Emergency Response Guidelines.

We look forward to reviewing the staff's resolution of this matter.

Sincerely,

**/RA/**

Graham B. Wallis  
Chairman

References:

1. Memorandum from J. Wiggins, RES, to J. Larkins, ACRS, Subject: Request for ACRS Review of Regulatory Guide 1.97, "Criteria for Accident Monitoring Instrumentation for Nuclear Power Plants," Revision 4, January 30, 2006 (ADAMS Accession No. ML053640127).

2. Regulatory Guide 1.97 (Draft was issued as DG-1128, dated June 2005), "Criteria for Accident Monitoring Instrumentation for Nuclear Power Plants," Revision 4, December 2005 (ADAMS Accession No. ML053640151).
3. Staff Responses to Public Comments on DG-1128, January 31, 2006 (ADAMS Accession No. ML053640161).
4. IEEE Standard 497-2002, "IEEE Standard Criteria for Accident Monitoring Instrumentation for Nuclear Generating Stations," September 2002.
5. Memorandum from J. Larkins, ACRS, to L. Reyes, EDO, Subject: Proposed Regulatory Guide (DG) -1128, "Criteria for Accident Monitoring Instrumentation for Nuclear Power Plants (Revision 4 Regulatory Guide 1.97)," July 8, 2005 (ADAMS Accession No. ML051950526).

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