NUCLEAR ENERGY INSTITUTE

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68 FR 43769
(4)

Chief, Rules and Directives Branch
Division of Administrative Services
Office of Administration
U. S. Nuclear Regulatory Commission
Mail Stop T6-D59
Washington, DC 20555-0001

SUBJECT: Comments on "Proposed Generic Communication – Method for Estimating Effective Dose Equivalent from External Radiation Sources Using Two Dosimeters" (Reference: 68 Fed. Reg. 43769, dated July 24, 2003)

This letter provides comments of the Nuclear Energy Institute (NEI)[1], on behalf of the nuclear energy industry, on the subject *Federal Register* notice.

The subject *Federal Register* notice requests comments regarding the clarity and utility of a proposed Regulatory Issue Summary (RIS) to provide guidance on an approved two-dosimeter monitoring method for estimating effective dose equivalent (EDE) from external radiation exposures. NRC also has requested comments on eight specific questions included in the notice.

Our comments on the draft RIS are included in Enclosure 1 and comments on the eight questions are included in Enclosure 2. In addition to the enclosed comments, we make the following general comments:

1. The nuclear energy industry supports the use of the EDE for determining compliance with total effective dose equivalent (TEDE) limits and criteria and for evaluating the safety significance of regulatory issues in regard to radiation exposures. The EDE represents a more risk-based quantity than the deep-dose equivalent (DDE) and, in certain cases, leads to an estimation

[1] NEI is the organization responsible for establishing unified nuclear industry policy on matters affecting the nuclear energy industry, including regulatory aspects of generic operational and technical issues. NEI members include all utilities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel fabrication facilities, materials licensees, and other organizations and individuals involved in the nuclear energy industry.

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of the TEDE that is more accurate and less overly conservative than when DDE is used.

2. We encourage NRC to confirm an effective and efficient process (or processes) whereby technical methods for estimating the EDE by use of one or more dosimeters can be proposed by licensees (or others), reviewed and approved by NRC for general use, and generically communicated to all licensees. Such a process (or processes) would enhance the effectiveness and efficiency of NRC review and approval of new methods by a standardized alternative to the current two-step approach whereby a licensee-specific application is reviewed and approved and then subsequently re-issued in a generic communication.

3. We understand and are supportive of NRC's position that allows for the use of calculational methods for estimating the EDE without advance approval by the agency. Nevertheless, we encourage the NRC to allow licensees, on a voluntary basis, to utilize the process recommended in comment number 2, above, to obtain approval for calculation methods. We expect that this would enhance the effectiveness and efficiency of the inspection process by resolving issues generically and by implicitly enhancing the degree of standardization in the calculation approaches being used.

4. We understand that research is being completed that is intended to help resolve the 30 cm distance limitation that is currently applied by NRC to the two-dosimeter method described in the proposed RIS included in the subject notice. We encourage the NRC to expedite review of the research when it becomes available and, to the extent that is technically justified, to reduce or eliminate the distance limitation.

Thank you for the opportunity to provide our comments on the subject notice. If you have any questions regarding our comments, please contact me at (202) 739-8111.

Sincerely,

Ralph L. Andersen

Ralph L. Andersen

Enclosures

Enclosure 1

NEI Comments on a Proposed Regulatory Information Summary (RIS) on a Method for Estimating Effective Dose Equivalent (EDE) from External Radiation Sources Using Two Dosimeters
(Reference: 68 Fed. Reg. 43769, dated July 24, 2003)

1. We understand that research is being completed that is intended to help resolve the 30 cm distance limitation that is currently applied by NRC to the two-dosimeter method described in the proposed RIS. We encourage the NRC to expedite review of the research when it becomes available and, to the extent that is technically justified, to reduce or eliminate the distance limitation.

2. To facilitate a better understanding of the EPRI methodology, we suggest that a copy of the peer-reviewed article[1] included in Reference 4 of the proposed RIS be included as an appendix to the RIS.

3. The proposed RIS includes a discussion of "9. Mean Method" and "10. Weighted Method" in the section entitled "Summary of Issues – Use of Effective Dose Equivalent." The reason for using the "9" And "10" for the two methods is not clear.

4. To enhance clarity, we suggest that the "additional issues and limitations" cited in the proposed RIS be numbered, beginning with the paragraph on "partial-body irradiations..." and concluding with the paragraph on "licensees using the weighted methodology..."

5. The proposed RIS states that only dosimeters that have demonstrated angular response characteristics at least as good as those specified in Reference 5 are to be used. 10 CFR 20.1501(c) requires that dosimeter processors be accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). In order to achieve NVLAP accreditation, dosimeter processors must meet the testing requirements of ANSI/HPS N13.11-2001, which provides testing requirements for angular dependence. We suggest that the RIS acknowledge that dosimeters which are NVLAP accredited in testing category IIA are also suitable for use in estimating EDE using the approved algorithm.

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[1] W.D. Reece and X.G. Xu, "Determining Effective Dose Equivalent for External Photon Radiation: Assessing Effective Dose Equivalent from Personal Dosimeter Readings," Radiation Protection Dosimetry, Vol. 69. No. 3, pages 167-178, 1997.

Enclosure 2

NEI Comments on NRC Questions in "Proposed Generic Communication Method for Estimating Effective Dose Equivalent from External Radiation Sources Using Two Dosimeters"
(Reference: 68 Fed. Reg. 43769, dated July 24, 2003)

1. The two dosimeter method is a technically acceptable alternative to the current practice of estimating the effective dose equivalent (EDE) from deep-dose equivalent. The method has been described in peer-reviewed journals and Report 122 of the National Council on Radiation Protection and Measurements (NCRP).

2. Existing regulations allow for the NRC to approve use of the two dosimeter method using an RIS (see, for example, RIS 02-006 and RIS 03-004).

3. The nuclear energy industry is strongly supportive of NRC approval of any and all technically-justified methods that provide better estimates of the EDE. Such approvals will provide additional flexibility to licensees for implementing NRC requirements, will reduce regulatory burden, and will allow for the use of a risk-based quantity in determining radiation doses.

4. This and similar algorithms described in peer-reviewed journals and in NCRP Report 122 are sufficiently technically developed to serve as the basis for dosimetry of record. We encourage NRC to review and approve any and all of such algorithms.

5. To facilitate understanding of the RIS, a copy of a peer-reviewed article that explains the technical basis for the algorithm should be included as an appendix to the RIS. (See comment no. 2 in Enclosure 1)

6. The level of guidance being provided is sufficient for implementation, given references to technically adequate documents (e.g., peer-reviewed articles, NCRP reports, or ANSI standards) and a clear description of regulatory issues and limitations, as are included in the proposed RIS. Consideration should be given to eventually integrating the EDE guidance into existing regulatory guidance for the use and recording of the DDE (e.g., Regulatory Guides 8.7 and 8.34). We view this as a matter of enhancing clarity and consistency within NRC regulatory guidance, and not as an essential aspect of enabling implementation of the approved methods.

7. Similar to our comments in response to Question 6 (above), we believe that the NRC should eventually revise the definition of the TEDE in 10 CFR Part 20 to enhance clarity and internal consistency within the rule. We believe

that the current rule permits the approval and use of the EDE in demonstrating compliance with TEDE limits and criteria, as discussed in RIS 2003-04 (and approved by the Commission).

8. Accuracy should always be an accepted goal for personnel monitoring. The degree of accuracy that is to be achieved should be reflective of the purpose of the monitoring. Accuracy, i.e., in lieu of "over- conservatism," should not be prescribed as a regulatory requirement because this would unnecessarily restrict implementation flexibility without any substantive health and safety benefit.