

POLICY ISSUE
(Information)

February 22, 2007

SECY-07-0036

FOR: The Commissioners

FROM: Luis A. Reyes
Executive Director for Operations /RA/

SUBJECT: STAFF COMMENTS ON THE DRAFT RECOMMENDATIONS OF THE
INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION

PURPOSE:

To inform the Commission on the staff comments on the "Draft Recommendations of the International Commission on Radiological Protection."

BACKGROUND:

The primary mission of the International Commission on Radiological Protection (ICRP) is to advance the science of radiological protection by providing recommendations and guidance on all aspects of protection against ionizing radiation. Toward that end, ICRP regularly examines the status of its recommendations and reviews scientific information to decide whether new recommendations are needed. The ICRP recommendations form one of the principal bases for the U.S. Nuclear Regulatory Commission (NRC) regulations and guidance for radiological protection. NRC participates in the ICRP review and consultation process at an early stage to ensure that the recommendations are supported by scientifically sound technical bases, are implementable in the United States, and provide a sound basis for U.S. regulations.

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ICRP published the most recent review of its recommendations in 1991 as ICRP Publication 60, "1990 Recommendations of the International Commission on Radiological Protection." Although the information available regarding radiation risks has not changed substantially since 1991, ICRP believes that the 1990 recommendations warranted revision. ICRP issued two draft versions for comment. NRC staff reviewed these earlier versions and provided comments to the Commission in SECY-04-0223, "Request for Approval of Staff comments on the 2005 Recommendations of the International Commission of Radiological Protection," dated November 26, 2004, and in SECY-06-0168, "Staff Comments on the Draft Recommendations of the International Commission of Radiological Protection," dated July 27, 2006. NRC staff provided these to the ICRP after Commission approval. ICRP posted the third version of the draft recommendations to its Web site on January 12, 2007, and intends to finalize the 2007 draft recommendations at its next meeting on March 19–21, 2007. ICRP extended an offer to Chairman Klein in a letter dated January 10, 2007, to accept NRC comments on the 2007 draft recommendations. The material enclosed was developed in response to the ICRP offer.

DISCUSSION:

The 2007 draft represents a major revision from the 2006 draft recommendations. ICRP revised the document in response to over 700 stakeholder comments provided directly to the ICRP Web site and comments received during three regional workshops sponsored by the Nuclear Energy Agency (NEA). ICRP completely restructured five chapters to clarify the ICRP system of radiological protection and the implementation of this system in planned, existing, and emergency exposure situations.

The staff solicited comments on the 2007 draft recommendations from the NRC program offices and consulted with NRC's Advisory Committee on Nuclear Waste. The staff notified the Agreement and Non-Agreement States of the opportunity to review the draft report and provide editorial comments to ICRP. The staff is working with members of the Interagency Steering Committee on Radiation Standards (ISCORS) to provide comments on the 2007 draft recommendations that reflect the shared views of the Federal agencies. Finally, the staff will participate in an NEA expert group review on February 20–21, 2007, to prepare comments that reflect the shared views of the NEA and its members.

The staff notes that the 2007 draft recommendations are greatly improved compared to the previous draft. ICRP seriously considered many of NRC's comments as reflected in the revised document. The most notable improvements are the clarification of the uses of dose limits, dose constraints, and reference levels under planned, emergency, and existing exposure situations. ICRP also clarified its rationale for using gender-averaged radiation risk coefficients, gender-averaged tissue weighting factors, and the use of collective effective dose.

Considering the prior Commission guidance on ICRP activities, the staff prepared the enclosed set of general comments and a Microsoft Word version of the draft recommendations with changes tracked. The staff has identified the following technical issues that need to be brought to the attention of ICRP:

- ICRP should continue to review the scientific literature, encourage the scientific community to develop new techniques for better elucidating the biological effects attributable to very low radiation doses, and develop documents that relate such effects

to the needs of radiological protection. ICRP should strive to develop realistic models that best predict stochastic health effects without incorporating excess conservatism into prediction models.

- Some of the information used by the ICRP to develop the 2007 draft recommendations is not yet published. ICRP recommendations should be based on the best scientific information that is published in peer-reviewed technical journals. Technical information that is not publicly available should be excluded from consideration by ICRP, regardless of its source.
- NRC believes that the proposed changes to the tissue weighting factors and nominal risk coefficients for cancer and hereditary disease will have the greatest impact on regulations promulgated by national authorities. ICRP should not adopt a new set of tissue weighting factors or nominal risk coefficients until: (1) the assessment of the atomic bomb data is completed; (2) these assessments are published as articles in peer-reviewed journals; and (3) these articles are reviewed and evaluated by the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR).
- ICRP continues to advocate a need to develop a framework for demonstrating radiological protection of nonhuman species. The staff will reiterate that NRC does not believe that it is necessary to develop a framework for radiological protection of nonhuman species and that it is opposed to the future development of separate standards for the protection of flora and fauna.
- NRC previously expressed concern about how ICRP would include the concepts of exemption and exclusion in the recommendations and what numerical values would be associated with these concepts. Although ICRP removed much of the objectionable text, ICRP reportedly provides additional guidance in a yet to be published document on the scope of radiological protection.
- The staff appreciates the ICRP observations regarding the use of collective dose. ICRP needs to provide clear guidance and numerical examples on the appropriate and inappropriate uses of collective dose. The staff has proposed some alternative language that may help clarify this issue.
- ICRP removed numerical values that could be used as a basis for terminating pregnancy. The staff provided additional language clarifying guidance that should be provided to any female first responder who is breastfeeding an infant.

CONCLUSION:

Although the staff believes that the draft 2007 recommendations are vastly improved over any previous version, much of the text describes the current state of the system of radiological protection being implemented within the United States. Comments were developed to clarify portions of the draft document and to provide additional guidance in others. However, ICRP acceptance of the NRC recommended changes will not alter the initial staff assessment that there may be no compelling public health and safety argument to change NRC regulations. Never the less, there are other issues to consider. The staff, in coordination with other federal

agencies, will revisit these issues after ICRP publishes the new recommendations. Then, the staff will provide the Commission options for possibly reviewing its radiation protection regulations and these options may include proposals to adopt some or all of the updated ICRP recommendations and dosimetry models.

COMMITMENT:

Listed below are the actions or activities committed to by the staff in this paper:

1. The staff will participate in the comment development efforts of ISCORS and NEA.
2. The staff will forward the enclosed comments to the Scientific Secretary of ICRP before March 15, 2007.
3. The staff will continue to monitor the activities of ICRP and will review subsequent documents when they become available.
4. The staff will provide the Commission options for possibly reviewing its radiation protection regulations and these options may include proposals to adopt some or all of the updated ICRP recommendations and dosimetry models.

RESOURCES:

The NRC staff has budgeted resources to review and evaluate the draft ICRP recommendations and supporting documentation as well as the radiation protection recommendations of national organizations for FY 2007 and FY 2008. No new resources are requested.

COORDINATION:

The Office of the General Counsel reviewed this package and has no legal objection. The Office of the Chief Financial Officer has reviewed this Commission paper for resource implications and has no objection. The Office of International Programs has no objection with staff plans to coordinate with NEA.

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Enclosure:
Letter to J. Valentin (with 2 enclosures)

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