

POLICY ISSUE INFORMATION

July 1, 2005

SECY-05-0117

FOR: The Commissioners

FROM: Luis A. Reyes
Executive Director for Operations

SUBJECT: STAFF COMMENTS ON THE FOUNDATION DOCUMENTS OF THE
INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION

PURPOSE:

To inform the Commission of the staff's review of the draft "Foundation Documents" published for public comment by the International Commission on Radiological Protection (ICRP).

BACKGROUND:

The primary mission of the ICRP is to advance the science of radiological protection by providing recommendations and guidance on all aspects of protection against ionizing radiation. The Main Commission of the ICRP regularly examines the status of its recommendations and reviews scientific information to decide whether new recommendations are needed. The ICRP published a draft revised set of recommendations for public comment in June 2004. The U. S. Nuclear Regulatory Commission (NRC) provided numerous general and specific comments (SECY-04-0223 and SRM-SECY-04-0223). During the comment period, many comments, including those of the Commission, noted the lack of availability of the "Foundation Documents" which were to provide elaboration and support for the draft recommendations.

The ICRP has posted five Foundation Documents on its website (www.icrp.org), and has requested public comments. Comments are due by July 10 or July 24, 2005, depending on

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when the specific document was posted for comment. ICRP has requested that comments be submitted electronically via the ICRP website. All comments submitted will be available for viewing on the ICRP website, and will be considered in preparing the final versions of these reports. The ICRP Main Commission also intends to use these comments in the preparation of the next version of the draft recommendations. The next draft of the recommendations themselves is anticipated to be available for public comment in Spring 2006.

In SECY 04-0055, dated April 7, 2004, the NRC staff proposed a plan for evaluating radiation protection recommendations. As part of its proposal, the staff committed to continue participating in the revision process by providing comments on early draft documents directly to the ICRP.

The NRC staff Radiation Protection Steering Committee solicited comments on the ICRP Foundation Documents from its members' respective offices. The NRC staff has also contacted NRC's Advisory Committee on Nuclear Waste (ACNW); the Agreement States, the Organization of Agreement States; and the Conference of Radiation Control Program Directors; to make them aware of the opportunity to comment on the ICRP documents. The NRC staff will also be participating in efforts by the Interagency Steering Committee on Radiation Standards to coordinate high-level comments from Federal agencies.

The NRC staff participated in an ACNW meeting on June 16, 2005. During that meeting, the NRC staff discussed the draft Foundation Documents with the Committee, and identified the areas in which the staff was developing comments. The ACNW plans to prepare a letter report and forward it to the Commission. The NRC staff has incorporated the ACNW views into the staff consolidated comments, as appropriate.

DISCUSSION:

The staff reviewed each of the Foundation Documents. Much of the material is technical information and provides details in the particular topical areas. However, some aspects may eventually affect policy considerations, so the staff is making the Commission aware of these issues. Considering prior Commission guidance on ICRP activities, the staff has prepared a set of consolidated comments for each of the Foundation Documents, and is providing these for Commission information (Attachments 1 - 5, respectively).

Most of the comments that the NRC provided during the comment period on the draft recommendations are not resolved by the material in these Foundation Documents. It is noteworthy that several of the key areas of NRC's previous comments, such as on the use of constraints versus limits and exemptions from the system of protection, are not addressed by any of the published Foundation Documents.

The staff notes the following issues that are of interest to the Commission, and which are contained in the NRC staff comments that will be provided to ICRP.

- "Assessing Dose of the Representative Individual for the Purpose of Radiation Protection of The Public." This report updates information on the critical group, and extends the discussion to the use of probabilistic calculations of dose. The report also suggests a limited set of age groups as sufficient for characterization of doses in prospective, future calculations.

The draft report suggests several new positions. First, the report suggests the use of a 95 percent confidence level for assessing compliance when probabilistic approaches are used to assess dose to members of the public. The recommendation could be a very useful step in realistic calculations if clarified properly. However, the draft is inconsistent in the presentation of this concept, causing confusion about the precise recommendation being made. Second, the report suggests that a limited number of age groups can be used in the prospective, future assessment of doses that might occur at a facility. This is consistent with the type of approach the NRC staff has used in assessments.

- “The Optimization of Radiological Protection - Broadening the Process.” This report updates information from several previous publications on optimization, and includes significant discussions of qualitative analysis and stakeholder interactions as part of the optimization process.

The report reflects attempts to “broaden” the process through the consideration of more than just the collective dose, factors beyond normal exposure and dose, and the use of stakeholders in the process. The report recommends that a matrix of dose attributes be used in optimization decisions because it would provide more complete information than a single calculation of collective dose. The report also suggests that other insights, such as implications for accident risks, are an appropriate part of optimization, as is the involvement of stakeholders. However, the draft does little to clarify the practical implementation of the approach suggested. In summary, the report reflects material that does, in fact, “broaden the concept of optimization” from that presented in previous ICRP publications, but it does not appear to add any new information that would be useful to NRC. The recommended additions are already part of many “as low as reasonably achievable” analyses conducted within industry. Earlier NRC comments on the topic remain valid.

One additional issue of concern in the report regards the statements that “Best Available Technology Not Entailing Excessive Costs (BAT)” is the equivalent of Optimization for purposes of exposure of the public, and effluents. The staff believes this is inappropriate, even given the caveat of “not entailing excessive costs.” BAT is generally regarded as a technology-driven approach, not an optimization of protection, and thus may be an input to, but not equivalent to, optimization. Staff identified this issue during the 2004 review of the ICRP draft Recommendations document, and comments on the Foundation Document are consistent with comments previously approved by the Commission.

- “Biological and Epidemiological Information on Health Risks Attributable to Ionizing Radiation: A Summary of Judgements for the Purposes of Radiological Protection of Humans.” This report provides the background and information supporting ICRP’s discussions of radiation exposure versus risk. The report builds upon the materials posted in December, 2004, in a draft ICRP report entitled “Low Dose Extrapolation of Radiation-Related Cancer Risk.”

The report presents information that would be essential for the NRC staff in order to develop any changes in the NRC regulatory framework after the ICRP recommendations are completed. However, the previous NRC comment that additional time should be allowed for review and consideration of the BEIR VII report remains valid. Changes in tissue weighting factor (W_T) values between this Foundation Document and those described in the draft Recommendations, apparently caused by revised considerations for several tissues (breast, gonads, kidney), also raise concerns about the stability and predictability of the basis for these recommendations.

- “Basis for Dosimetric Quantities Used in Radiological Protection.” This report provides the background information on the development and selection of radiation weighting factors and tissue weighting factors to be used in the calculation of effective dose (formerly referred to as dose equivalent).

The report recommends several changes, which include adopting new radiation weighting factors for protons and neutrons, and new tissue weighting factors used in the calculation of effective dose. The recommendations are tied to the information in the Biological and Epidemiological report described above. New terminology is introduced in an effort to make the system of radiological protection more coherent and understandable. The NRC staff has identified only specific technical comments to improve the clarity and understandability of the report.

- The Concept and Use of Reference Animals and Plants for the Purposes of Environmental Protection.” This report is the next in the series related to environmental protection, and builds upon ICRP Publication 91 by outlining a possible set of reference animals and plants that could be characterized and used in assessments of environmental impacts.

The report does not appear to change the current NRC view regarding Protection of the Environment. Much of the material presented is a description of the current state of knowledge on radiation effects in various species, and the issues that need to be studied and resolved. As such, the document is a statement of a research program, not a foundation for making policy commendations. The Commission’s earlier views, as articulated in a Staff Requirements Memorandum dated May 13, 2004, in response to SECY-04-0055, are fully reflected in the NRC staff comments.

The ICRP has indicated that the next version of the draft Recommendations would be completed after the finalization of the Foundation Documents and should be ready for Main Commission consideration in the early part of 2006. The staff believes that the ICRP should take additional time to respond to comments that will be received before preparing the next draft of the recommendations. ICRP has also indicated that it will likely solicit stakeholder comments on the draft Recommendations for a second time. This is expected to occur in the Spring 2006. The most likely consequence of this schedule will be that the publication of the new ICRP Recommendations will be delayed until at least late 2006, if not longer. The staff will continue to monitor the ICRP’s activities, review documents if and when they become available,

and provide comments directly to the ICRP. In addition, the staff will continue to participate in other forums, such as Expert Groups of the Nuclear Energy agency, to express NRC's views on the ICRP documents.

COMMITMENTS

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

1. Provide the attached comments, as NRC staff comments, via the ICRP website, on or before the comment due date for each respective document.
2. Provide the attached comments to other Federal Agencies through the Interagency Steering Committee on Radiation Standards to coordinate high level comments.

/RA by Martin J. Virgilio Acting For/

Luis A. Reyes
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Attachments:

1. NRC Staff Comments on Representative Individual Foundation Document
2. NRC Staff Comments on Optimization Foundation Document
3. NRC Staff Comments on Physics Foundation Document
4. NRC Staff Comments on Biology Foundation Document
5. NRC Staff Comments on Environment Foundation Document

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*See Previous Concurrence

OFC	NMSS*	DSARE/RES*	D/RES*	OSTP*	NRR*
NAME	DACool	CTrottier	CPaperiello	PLohaus	JDyer
DATE	06/27/05	06/24/05	06/24/05	06/24/05	06/23/05
OFC	TechEd*	NMSS*	DEDMRS	EDO	
NAME	EKraus	JStrosnider	MVirgilio <i>PLohaus for</i>	LReyes	
DATE	06/22 /05	06/28/05	07/01/05	07/01/05	

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