

POLICY ISSUE INFORMATION

May 28, 2007

SECY-07-0086

FOR: The Commissioners

FROM: Luis A. Reyes
Executive Director for Operations

SUBJECT: ANNUAL REPORT ON ACTIVITIES ASSOCIATED WITH EVALUATING
SCIENTIFIC INFORMATION ABOUT RADIATION HEALTH EFFECTS
AND RADIATION PROTECTION RECOMMENDATIONS

PURPOSE:

To update the Commission with regard to the staff's activities to evaluate scientific information about radiation health effects and the radiation protection recommendations of national and international organizations. This paper does not address any new commitments or resource implications.

BACKGROUND:

In the past, the U.S. Nuclear Regulatory Commission (NRC) has followed the basic radiation protection recommendations of the International Commission on Radiological Protection (ICRP) and its U.S. counterpart, the National Council on Radiation Protection and Measurements (NCRP), in formulating its basic radiation protection standards. Title 10, Part 20, "Standards for Protection Against Radiation," of the *Code of Federal Regulations* (10 CFR Part 20) sets forth the agency's standards. The NRC completed its last major revision of these standards with the publication of a *Federal Register* notice (56 FR 23360) on May 21, 1991.

In response to a staff proposal to update the agency's regulations concerning byproduct and source material (SRM-SECY-02-0196, "Recommendations Stemming from the Systematic Assessment of Exemptions from Licensing in 10 CFR Parts 30 and 40; and a Rulemaking Plan

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for Risk-Informing 10 CFR Parts 30, 31, and 32,” dated November 17, 2003), the Commission directed the staff to:

[P]rovide the Commission with a comprehensive plan for evaluating the latest scientific information and the recommendations of the international/national radiation protection organizations for possible incorporation into our regulatory activities, policies, and regulations. This plan should include evaluation of all major efforts scheduled to be completed in the next several years, and lead to staff recommendations on the need to revise NRC’s regulatory program.

The staff subsequently transmitted a review plan to the Commission in SECY-04-0055, “Plan for Evaluating Scientific Information and Radiation Protection Recommendations,” dated April 7, 2004, and the Commission approved that plan on May 13, 2004. In the plan the staff committed to provide the Commission with annual status reports, including progress summaries concerning the activities associated with evaluating scientific information about radiation health effects and the radiation protection recommendations of national and international organizations. This paper is the third annual status report.

DISCUSSION:

Ongoing scientific work continues to increase understanding of the health effects and risks associated with radiation exposure. To date, most of this understanding has derived from studies of Japanese atomic bomb survivors. Toward that end, in 2005, the Radiation Effects Research Foundation (a private, nonprofit organization supported by the governments of Japan and the United States) revised the system for assigning radiation doses to the atomic bomb survivors from Hiroshima and Nagasaki, and the foundation is expected to update its related cancer risk estimates in the near future. Currently, these cancer risk estimates provide the fundamental basis for estimating radiation-induced health effects.

To address the issue of how low doses of radiation affect living organisms, the U.S. Department of Energy (DOE) initiated a 10-year research program in 1999 to better characterize radiation effects on cells and molecules. Investigators funded under that program meet periodically to discuss progress on individual research projects, and NRC staff representatives participate in these discussions. To date, DOE has reported a significant increase in new techniques and instrumentation for use in measuring the biological and genetic changes induced by exposure to low doses of radiation.

Other organizations also review current research findings and develop risk estimates on the basis of their reviews. In the international arena, for example, the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) also periodically examines the effects of radiation exposure from natural and manmade sources and published its most recent major report in 2000. UNSCEAR is currently reexamining the health effects of radiation exposure by evaluating epidemiological studies of radiation and health (cancer and noncancer illnesses), examining the mechanisms and consequences of radiation exposure in tissues, and examining the dynamics of radionuclides in the environment and their impact on ecosystems.

UNSCEAR may publish its next report later this year. The NRC staff will continue to directly support the U.S. delegation to UNSCEAR by reviewing draft documents as they become

available and providing technical guidance to the delegation and the UNSCEAR secretariat during Committee deliberations.

ICRP periodically reexamines its recommendations using scientific information, such as UNSCEAR reports, to decide whether new recommendations are needed. NRC staff, along with its Federal partners, provided comments directly to ICRP and through other organizations such as the Organisation for Economic Co-operation and Development's Nuclear Energy Agency on the latest revision of the recommendations. In addition, the staff has facilitated meetings and a U.S. workshop in August 2006 between members of the ICRP Main Commission and NRC staff and stakeholders.

The staff reviewed and provided Commission-approved comments to ICRP on the supporting documentation for the ICRP revised recommendations, which was made available for review and comment in April 2005 and June 2006 and for review only in January 2007. ICRP approved the new recommendations in March 2007. In addition, ICRP formed a new Committee 5, Protection of the Environment, and NRC staff will provide comments on any documents generated by this group. NCRP may also update its radiation protection recommendations following the publication of the Biological Effects of Ionizing Radiation VII and UNSCEAR documents and the finalization of any new or revised ICRP recommendations.

The enclosure to this paper summarizes each of the staff's related ongoing activities. The NRC staff budgeted resources to evaluate scientific information about radiation health effects and the radiation protection recommendations of national and international organizations for the next fiscal year. Staff also coordinates, as appropriate, with other Federal Agencies through the Interagency Steering Committee on Radiation Standards and with the Agreement States through the Organization of Agreement States and the Conference of Radiation Control Program Directors. These budgeted resources will enable the staff to continue to monitor and participate in these groups' activities, allowing the staff the opportunity to present NRC's views on their work.

Based on its review of these documents, the staff will assess the possible implications for the NRC's regulations and related Federal guidance and will inform the Commission regarding its findings, conclusions, and recommendations.

COORDINATION:

The Office of the General Counsel reviewed this package and has no legal objection.

/RA/

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ML070920080

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