

POLICY ISSUE INFORMATION

May 16, 2005

SECY-05-0089

FOR: The Commissioners

FROM: Luis A. Reyes
Executive Director for Operations

SUBJECT: ANNUAL REPORT ON ACTIVITIES ASSOCIATED WITH EVALUATING
SCIENTIFIC INFORMATION 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.

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. The agency's "Standards for Protection Against Radiation," are set forth in Title 10, Part 20, of the *Code of Federal Regulations*. The last major revision of these standards was completed 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 (SECY-02-0196), dated November 17, 2003, the Commission provided the following staff direction:

"... provide 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..."

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The staff subsequently transmitted a review plan to the Commission in SECY-04-0055, and the Commission approved that plan on May 13, 2004. One aspect of that plan involved a staff commitment 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 first of those annual status reports. As such, this paper reflects related staff activities that are coordinated by the NRC's Radiation Protection Steering Group, which includes representatives from the Offices of Nuclear Reactor Regulation, Nuclear Material Safety and Safeguards (NMSS), Nuclear Regulatory Research (RES), Nuclear Security and Incident Response, and State and Tribal Programs (STP).

DISCUSSION:

Ongoing scientific work continues to increase our understanding of the health effects and risks associated with radiation exposure. To date, most of the related understanding has derived from studies of the Japanese atomic bomb survivors. Toward that end, the Radiation Effects Research Foundation (a private, nonprofit organization supported by the governments of Japan and the United States) recently revised the system by which radiation doses are assigned to the atomic bomb survivors from Hiroshima and Nagasaki, and 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 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.

Other organizations also review current research findings and develop risk estimates on the basis of their reviews. In the United States, for example, the National Academies published "Health Effects of Exposure to Low Levels of Ionizing Radiation: BEIR V" in 1990. An update, to be published as BEIR VII (Biological Effects of Ionizing Radiation report No. VII), is currently undergoing review by the National Academies, and may be published by the National Academy Press as early as June 2005. Within 90 days after receiving the BEIR VII report, the NRC staff will assess its possible implications on the agency's regulations and the related Federal Guidance, and will update the Commission regarding the staff's findings, conclusions, and recommendations.

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 non-cancer 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 in 2007.

The ICRP periodically reexamines its recommendations using scientific information, such as UNSCEAR reports, to decide whether new recommendations are needed. As part of that effort, the ICRP is currently consolidating, simplifying, and updating its recommendations. To evaluate and participate in that revision, NRC staff representatives have provided comments directly to the ICRP and through other organizations such as the Nuclear Energy Agency. In addition, the staff has facilitated meetings between members of the ICRP Main Commission and NRC staff and stakeholders. The staff will also review the supporting documentation for the ICRP's revised recommendations, which was made available for review and comment during April 2005. The staff will forward its comments to the ICRP in time for incorporation before the ICRP releases the next draft of its recommendations for review and comment in spring 2006.

The NCRP may also update its radiation protection recommendations following the publication of the BEIR VII and UNSCEAR documents and the finalization of any new or revised ICRP recommendations.

The attachment to this paper summarizes each of the staff's related ongoing activities. The NRC staff have budgeted resources to evaluate scientific information about radiation health effects and the radiation protection recommendations of national and international organizations for the next two fiscal years. STP will solicit comments on these documents from the Agreement States, the Organization of Agreement States, and the Conference of Radiation Control Program Directors. These budgeted resources will enable the staff to review the ICRP's supporting documentation and the National Academies' BEIR VII report this summer, followed by the next draft of the ICRP's recommendations next spring. Based on its review of these documents, the staff will assess the possible implications on the NRC's regulations and the related Federal guidance, and will update the Commission regarding its findings, conclusions, and recommendations. Consequently, the staff believes that the NRC should not undertake any significant revision of its radiation protection regulations until after the staff reviews both the BEIR VII report and the final ICRP recommendations and their supporting documentation.

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Attachment: Activity Summaries

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