Presentation

KEYNOTE ADDRESS : REVISION OF THE INTERNATIONAL BASIC SAFETY STANDARDS AND IMPLICATIONS FOR EXPOSURE TO NATURAL SOURCES

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The International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources (the BSS) were published by the IAEA in 1996. Following a review in 2005−2006, a decision was made to embark on a revision process starting in 2007 in collaboration with the cosponsoring organizations. Completion of a final draft (in readiness for approval by the IAEA Board of Governors) is expected in 2011. The requirements in the new BSS draft are in line with the 2007 Recommendations of the ICRP. The three types of exposure situation recommended by the ICRP — planned exposure situations, existing exposure situations (currently referred to as chronic exposure situations) and emergency exposure situations — are reflected in the structure of the document. Exposure to natural sources continues to be generally subject to the requirements for existing exposure situations but exposure control, rather than being based on the use of action levels as at present, is based instead on the use of reference levels (defined by the ICRP as levels of dose or risk above which it is judged inappropriate to allow exposures to occur and below which optimization of protection should be implemented). The maximum reference levels for exposure to radon are expressed in terms of radon activity concentration and are set at 300 Bq/m^3 for homes and 1000 Bq/m^3 for workplaces, these values corresponding to an effective dose of about 10 mSv per year. For exposure to radionuclides in commodities, a maximum reference level of about 1 mSv per year is applicable, ensuring a level of protection similar to that for planned exposure situations, even though the mechanism of control is different. Some basic requirements for cosmic ray exposure of aircrew and space crew are included for the first time. The following exposures are, by exception, subject to the requirements for planned exposure situations: public exposure to radioactive discharges and waste; occupational exposure to radon when its concentration exceeds 1000 Bq/m^3 or when required by or directly related to the work; and exposure to material (other than commodities such as food, drinking water, fertilizers and construction materials) with a radionuclide activity concentration exceeding 1 Bq/g (or 10 Bq/g in the case of K-40). For the first time, numerical criteria for exemption and clearance of NORM have been included. Exemption is determined on the basis of dose commensurate with natural background levels (about 1 mSv per year). Clearance criteria for NORM (first published in 2004 in Safety Guide No. RS-G-1.7) are 1 Bq/g for U and Th series radionuclides and 10 Bq/g for K-40. It is concluded that the revised BSS should provide greater clarity on the control of exposure to natural sources and, as a result of the new ‘reference

level' approach, the level of protection in existing exposure situations such as indoor radon will be significantly increased.