NRRC Specific Regulations

Per-Established Dose Constraints for the Members of the Public

NRRC-R-01-SR04

2023

هيئة الرقابة النووية والإشعاعية
Nuclear and Radiological Regulatory Commission

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Preamble

In accordance with the provisions of the Radiation Safety Regulation (NRRC-R-01), approved by the NRRC's Board of Directors in resolution No. (R/1/1/2022), dated 20 April 2022, in chapter (2) section (8) article (20), this specific regulation establishes specific criteria, conversion factors and other references values that shall be used to support the verification of compliance with the dose limits.

This specific regulation has been prepared on the basis of International Atomic Energy Agency (IAEA) standards, as well as the and the international best practices and the experiences of similar international regulatory bodies, and in accordance with the Kingdoms international commitments, and it has been approved by the NRRC's CEO resolution No. 1338, dated 22/06/2023.

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Section 1: Objective

1. This specific regulation gives the values for the dose constraint for members of the public in planned exposure situations as defined in the Regulation on Radiation Safety (NRRC-R-01), Articles 20, 21, 117, 118, 120.

Section 2: Scope

2. This specific regulation applies to all activities and facilities under radiation practices, that are carried out in the Kingdom which involve, or could involve, risk of the public exposure to ionizing radiation.
3. This specific regulation does not apply to:
    a. nuclear fuel cycle facilities, activities or practices; and
    b. research reactors.
4. This specific regulation provides the numerical values of dose constraints directly established by the NRRC.

Section 3: Definitions

Dose

1. A measure of the energy deposited by radiation in a target.
2. Absorbed dose, committed equivalent dose, committed effective dose, effective dose, equivalent dose or organ dose indicated by the context.

Dose constraint

A prospective and radiation source related value of individual dose that is used in planned exposure situations as a parameter for the optimization

of protection and safety for the source, and that serves as a boundary in defining the range of options in optimization.

Collective dose

The total radiation dose incurred by a population. This is the sum of all of the individual doses to members of the population. If the doses continue for longer than a year, then the annual individual doses must also be integrated over time.

Member of the public

For purposes of protection and safety, in a general sense, any individual in the population except when subject to occupational exposure or medical exposure. For the purpose of verifying compliance with the annual dose limit for public exposure, this is the representative person.

Storage

The holding of radioactive sources, radioactive material, spent fuel or radioactive waste in a facility that provides for their/its containment, with the intention of retrieval.

Chapter 2: Dose Constraints

Section 4: Numerical Values of Dose Constraints

5. The dose constraint for members of the public shall not exceed 0,1mSv per year in case of:
    a. the release of radioactive substances into the sewer system, to the sea, a lake or a river, or to the air;

b. conditional reuse, recycling or disposal of radioactive material arising from an authorized practice.

6. The dose constraint for the design of places for use or storage of radiation sources shall not exceed:
   a. 0.3 mSv per year for members of the public.
7. The dose constraints for the use of radiation sources for educational purposes in schools or univer-sities shall not exceed:
   a. 0,03 mSv for the exposure of the student by a single demonstration; and
   b. 0.3 mSv per year for the exposure to the student, teacher and other workers.
8. The dose constraints for the use of radiation source for the purposes of security check (including identification of objects concealed inside the human body) shall not exceed:
   a. 0.05 mSv per one scan; and
   b. 1 mSv of collective dose per year.
9. The dose constraint for the design of radioactive waste disposal facility shall not exceed 0.3 mSv per year for a very long period of time.

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