Principles of Radiological Protection

Application of Dose Limits

Dose limits are applied under planned exposure situations.

- Occupational exposure (effective dose)
 50 mSv per year and 100 mSv per five years
- Public exposure (effective dose)1 mSv per year

1 mSv per year

(Exception) Dose limits are not applied to medical exposure.

- Justification on a case-by-case basis
- Optimization of radiological protection is important.



Source: Prepared based on the ICRP Publication 103, "The 2007 Recommendations of the International Commission on Radiological Protection" (ICRP, 2007)

The third principle of radiological protection is the application of dose limits. The 2007 Recommendations of the ICRP specify the effective dose limit for occupational exposure (excluding radiation work in an emergency) as 100 mSv per five years and 50 mSv for the specific one year.

The effective dose limit for public exposure is specified as 1 mSv per year.

Dose limits are the standard limits below which the total exposure to all radiation sources under management is to be controlled. The goal is not to merely keep the total exposure below those dose limits but continued efforts are required to reduce exposure doses through further optimizing radiological protection. In this sense, dose limits do not stand for permissible exposure doses, nor do they represent the threshold to divide the safety and the danger.

Regarding medical exposure in treatment or health checkups, dose limits are not applied. This is because the application of dose limits to medical exposure may hinder patients from receiving necessary inspections or treatment and is sometimes detrimental to them. Accordingly, the justification is to be made from three viewpoints (the fact that radiation use in medicine is more beneficial than harmful to patients; application of specific methods to patients exhibiting specific symptoms; and application of methods customized for respective patients), and doses are to be optimized by applying diagnostic reference levels, etc.

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