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RATIONING AND CONTROL OF SKIN, HANDS AND FEET IRRADIATION

Y. Blagodarova, N. Tushin

Belarusian State University, ISEI BSU,
Minsk, Republic of Belarus
blagodarova-yana@mail.ru

The article describes the ways of rationing and control of radioactive contamination of the skin, hands and feet.

Keywords: individual dose equivalent, ambient dose equivalent, directional dose equivalent.

Due to the construction of the nuclear power plant on the territory of the Republic of Belarus, the issue of ensuring radiation safety of both personnel and the public is relevant. Radioactive contamination and exposure of skin, hands and feet are an essential factor determining the external and internal exposure of a person. Since skin is the outer cover of the human body, its function is to protect humans against various external influences. The function of limbs is the implementation of various labor operations, manipulation of objects and movements. That is why these organs are the most vulnerable and in order to ensure radiation safety, dosimetric control of these organs is necessary.

In assessing compliance of exposure conditions with regulatory requirements, operational values are used, the values of which under certain exposure conditions are close to the values of the corresponding normalized values. The most important quality of operational quantities is that they can be directly measured during radiation monitoring.

Nowadays, the following operating values are used in the measurement practice of dosimetric monitoring of external exposure: ambient dose equivalent H*(10) and individual dose equivalent Hp(10) and, in some rare cases, individual dose equivalent in skin Hp(0,07).

Using a couple of operational quantities (ambient and individual dose equivalents), it is possible to solve the problems of dosimetric control. However, today in the Republic of Belarus there is no ambient operational value similar to H*(10) to control skin, hands and feet.

The current situation excludes the possibility of predicting the equivalent dose in the skin and limbs for the year and making decisions on the introduction of individual dosimetric control with measurement of individual dose equivalents Hp (0,07) at a given workplace.

In international practice, when controlling workplaces and as a criterion for introducing individual control of doses in the skin and limbs, the operational value “directional dose equivalent - H’ (d, Ω)” is used.

Thus, the directional dose equivalent - H’(d, Ω) and individual dose equivalent in the skin and limbs Hp(0,07) are capable to provide a conservative dose estimate of the dose from low-penetrating radiation. And these dose are mandatory for the purposes of radiation safety of external exposure.

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