

Methodology for setting the reference levels in the measurements of the dose rate absorbed in air due to the environmental gamma radiation.

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Abstract

The methodology for setting the reference levels of the measurements of the gamma dose rate absorbed in the air is described.

The registration level was obtained using statistical methods. To set the alarm levels, it was necessary to begin with certain affectation level, which activates the investigation operation mode when being reached. It is was necessary to transform this affectation level into values of the indicators selected to set the appearance of an alarm in the network, allowing its direct comparison and at the same time a bigger operability of this one.

The affectation level was assumed as an effective dose of 1 mSv/y, which is the international dose limit for public. The conversion factor obtained in a practical way as a consequence of the Chernobyl accident was assumed, converting the value of annual effective dose into values of effective dose rate in air.

These factors are the most important in our work, since the main task of the National Network of Environmental Radiological Surveillance of the Republic of Cuba is detecting accidents with a situations regional affectation, and this accident is precisely an example of pollution at this scale.

The alarm level setting was based on the results obtained in the first year of the Chernobyl accident. For this purpose, some transformations were achieved.

In the final results, a correction factor was introduced depending on the year season the measurement was made.

It was taken into account the influence of different meteorological events on the measurement of this indicator.

KEYWORDS: *affectation level; alarm level; reference level; gamma dose rate; Chernobyl accident.*

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