RESEARCH OF THE RADIATION BACKGROUND ON THE GRAIN PROCESSING ENTERPRISES OF KYIV

Labzhynska Marharyta, Volodchenkova Natalia
National University of Food Technologies, Kyiv, Ukraine
volna22@bigmir.net

The risk of being people in the environment with high levels of radiation is determined by the duration of radiation action on the body. In places of people stay constant systematic measurements of radiation background is the only way to find out about the radiation threat.

Measurement of radiation background is carried out by the exploration scintillation radiometer СРП-88Н, which is designed to locate and identify the sources of gamma rays, as well as indirect measurements of radioactivity. The device measures the natural gamma background акщь 10 to 3×10^4 mR/h and has a high sensitivity and reliability compared with more modern counterparts.

Kyiv has undergone increased influence of radiation after ChNPP accident in 1986 Natural background radiation of Kyiv is the highest compared to the other cities in Ukraine, but it does not exceed the normative value (norm is 20 mR/h, and natural – 10-16 mR/h). Daily measurements of radiation background can detect radiation levels increase and to take in time the necessary steps to eliminate the dangerous consequences.

Possible sources of radiation on grain processing enterprises are a building materials of industrial and domestic premises, iron structures (tracks, fire stairs, etc.), railway transport, road

transport, industrial and technological equipment, raw materials, and sources of ionizing radiation are in the radiological lab and are used in devices for radiological research of materials and products of grain processing. Value radiation levels can range depending on weather conditions (the amendment eliminated).

Measuring of the total radiation background at an enterprise for a month has established the following average values (in terms of mR/h): room of radiological laboratory (source of radiation contained in the lead safety deposit box) – 11,0; chemical laboratory facilities – 12,2; granite stairs in a mill-plant – 17,5; open area – 14,6; railway wagon on railway tracks – 16,7; 1^{st} of mill-plant – 13,0; 7^{th} mill-plant – 14,1; undersilio floor of elevator – 12,4.

In all in other premises of buildings, as well as in the territory and around equipment or transport experienced the same average level of radiation background does not exceed the maximum permissible standard values.

Conclusions. Thus, at the grain processing enterprises in Kiev there is normal average background radiation, which does not threaten to the health and lives of workers even with permanent residence in the area.

References

1. A. Gunatilaka, B. Ristic, and R. Gailis. On localisation of a radilogical point source. In International Conference on Information, Decision and Control. 2007.
2. Strom D.J. Health impacts from acute radiation exposure. Pacific Northwest National Laboratory Report PNNL-14424, Richland, Wash. 2003.
3. International Commission on Radiological Protection. The 2007 Recommendations of the International Commission on Radiological Protection. Annals of the ICRP 37(2-4). ICRP Publication 103. Pergamon Press, Oxford, 2007