



RADIOACTIVE CONTAMINATION OF MOSCOW TERRITORY. RETROSPECTIVE ANALYSIS

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ABSTRACT

Moscow is one of the largest European cities, where there are many industrial plants, research-and-development centers and medical institutions, using in its work sources of ionizing radiation. Despite of strict radiation safety law observance, activity of these organizations brought to radioactive contamination areas on Moscow territory. Mainly it is connected with lack of radiation hazard understanding at the beginning of «nuclear era». In 40-50th years of last century, when contaminated equipment or used sources of ionizing radiation often were not buried in special spaces, but were dropped in holes beside the city boundaries. Now these territories are included in city boundaries and built up. Since 80th till middle 90th years of the last century on Moscow territory, due to MosNPO «RADON», NPO «Aerogeophysika», Central geological prospecting expedition and other organizations, ground gamma-survey 1:40 000 scale was done. As the result a lot (more than 1000) of radioactive contamination areas, connected with human economical activity, were revealed. Mainly these are contaminated grounds and soils, different equipment, medications, old aircraft devices and household goods (clocks, New-Year tree decorations and etc.) with constant active phosphor (CAP), containing ²²⁶Ra. Contaminated areas square, as usual, did not exceed 1 sq.m, but large unapproved dumps with some hectares square were also revealed. Gamma-radiation dose on the surface of the contaminated areas, varied in wide range from 100 mkR/h till 3-5 R/h. Pollution radionuclid composition consist of ¹³⁷Cs and ²²⁶Ra, rare ²³²Th, ⁹⁵Zn+⁹⁵Nb and ⁶⁰Co. In single instances, contaminated areas have traces of transuranium elements – plutonium and americium. Besides listed local radioactive contaminated areas, in Moscow soils often ¹³⁷Cs can be found, presence of which is determined by atmospheric precipitates due to the Chernobil atomic power-station failure, and nuclear tests in atmosphere.

Since middle 90th years of the last century due to Moscow government regulation obligatory radioactive survey during any building-up works were organized. State medical epidemic institution and Labs of radioactive control in building organizations measure gamma-radiation dose within developed areas and radionuclid specific activity in grounds and soils. These measures are effective. Number of new revealed radioactive contaminated areas decrease every year. Now not more than 10 new areas are revealed ever year in the city. Intensive works are underway on decontamination of early revealed areas.

Key words: radioactive contamination areas, radioactive control, gamma radiation, dosimetry, gamma-spectrometric measurements.