UZ9700671

AN INVESTIGATION OF SNTS' SOIL COMPOSITION BY NUCLEAR-PHYSICAL AND RADIOCHEMICAL METHODS OF ANALYSIS.

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In the report there are presented results of works of the Laboratory of Nuclear-Physical Methods of Analysis and the Laboratory of Radioactive Isotopes, INP NNC RK, on investigation of radionuclide composition of soil of the SNTS (the Semipalatinsk Nuclear Test Site).

There are developed techniques of radionuclide and elemental analysis with use of alpha-, beta-, gamma- spectroscopy, of radiochemical separation, of roentgen-fluorescent and atomic- emission analysis with inductive- connected plasma. A software of radiometrical methods is based on ideas of standard definition of absolute activity that allows to carry out determinations in samples of different masses.

The solution of the task of determination of radionuclide composition in soil fraction was required a development of complex technique for radiochemical separation of plutonium, americium, and strontium- 90 from the same probe. As the main method of radiochemical separation there is used the extractional chromatography with next extra- agents: Trioctilamine (TOA), trioctilphosphineoxide (TOPO), di-2-ethylhexil of phosphoric acid.

The investigation of radionuclide composition of soils (and, especially, their fractions) shows a large difference of concentrations and relations of radionuclides and their entrance forms. The results of works will be used for characterization of radioecological situation at the SNTS, at present, and for prognosis of radionuclides migration.

Works carried out are supported by the State Special Scienti-Technical Programme (SSSTP) «Development of Atomic Enegretics in Kazakhstan», and by Project of the IAEA and the ISTC.