RESEARCHES IN INCREASE OF EFFICIENCY OF ELECTROKINETIC PROCESS OF GROUND CLEANING FROM RADIONUCLIDES

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During activity of the enterprises of a nuclear industry there was a line of serious problems connected to contaminate of separate territories radionuclides and organic substances, as a rule, are exposed ground, to contaminated clay minerals, containing in the structure. Such ground having high sorption properties, are capable to keep on the surface contaminants and even to include them in the crystal structure. The durability of connections with a ground is determined by physical-chemical properties both separate versions soil and ground, and contaminants. Naturally depth of a layer with the increase contents radionuclides and heavy metals is limited 0,5 m more often.

Potentially perspective method decontamination of ground is electrokinetic method, which basic advantage consists in an opportunity of its application for clearing ground with low filtering by ability directly on a place of local contaminated (in situ). Thus moving the large volumes of the contaminated ground is excluded. Base of this method is the processes of electromigration and electroosmotic, proceeding in a contaminated ground lay at imposing an electrical field of a constant current. Electrokinetic method of cleaning of ground from radionuclides provides their transfer in water-soluble, mobile form, carry as positive or negative ions under influence of an electrical field into electrode chambers with their subsequent recycling.Electrokinetic method in practice can be realized as follows: in the contaminated ground establish special electrode devices, fill their electrolyte and connect to a source of a constant current. Formed in the anode device as a result of electrochemical decomposition of water the ions of hydrogen under action of an electrical field move to the cathode, thus cooperate with a ground and superside cations of radioactive elements. Desorbed cations of contaminate act in catholyte, which periodically or continuously is exposed to clearing, for example, on sorption column.

Last years the experts MosNPO "Radon" carry out complex researches directed on development of electrokinetic technology of cleaning ground from radionuclides and heavy metals. To the present time laboratory and bench tests of electrokinetic method are carried out. The basic attention at study of process of cleaning was given to objects contaminated Cs-137, most difficult recovery an element, which is strongly fixed by clay minerals and can enter into crystal structure.