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PROPOSAL TO CHANGE THE CONCEPT OF SOLID RADIOACTIVE WASTE MANAGEMENT IN CONNECTION WITH THE ADVENT OF LOW-AGENT MECHANOCHEMICAL DECONTAMINATION TECHNOLOGY "McSimets"

The public of nuclear industries is informed about the creation and successful industrial tests at the nuclear power plant of Eastern Europe of a new decontamination technology "McSimets"with the use of biopolymer supramolecular decontamination means to background values based on new physico-chemical principles.
Due to the decommissioning of nuclear facilities around the world, the relevance and need for new decontamination technologies has significantly increased. First of all, this applies to the problem of fragmentation and dismantling of metal and building structures and the associated dose loads on personnel and technological problems. In addition, this refers to the problem of the formation of a significant amount of solid and liquid radioactive waste requiring disposal.
The decontamination technologies used today do not allow to completely decontaminate MRW to background values, the decontamination coefficient of metal radioactive waste is no more than 50-100 units. This is not enough to remove waste from radiation supervision, it does not fundamentally affect the order and safety of handling and the cost of disposal. In this regard, the concept of waste management provides for their long-term disposal.
The study of the kinetics of chemical reactions made it possible to make a forecast about the absence of prospects for a significant breakthrough in the direction of increasing the decontamination coefficients within the framework of traditional research directions without the application of new principles.
Applied fundamentally new principles for creating decontamination technologies. Based on them, new tools and technologies have been developed for the indiscriminate decontamination of systems, large-sized equipment and fragmented waste to the level of background radioactivity.
Planned to highlight the mechanisms of supramolecular preparations, the properties of the McSimets technology, the results of industrial tests for decontamination samples of the cooling circuit of VVER-440 total weight 500 кг reactors with a high level of highly fixed diffuse magnetite radioactive deposits and hidden cavities of radioactivity localization. Decontamination was carried out without preliminary mechanical cleaning and without the use of additional influences (electrochemical, ultrasound, heating and other methods).
Test results that reduce the radioactivity of the metal to the background (for the controlled access zone of the NPP) values. For all MRW:

Decontamination coefficient = 1500-4000 (β-particles)
Decontamination coefficient = 350-600 (γ -particles)
The decontamination time was from 5 to 40 minutes
The total salinity of secondary LRW compared with control solutions of inorganic acids is reduced by 30-50 times
The technology is low-cost in terms of the amount of reagent per unit mass of the deactivated metal.
Decontamination was carried out on standard decontamination equipment

Thus, the possibility of using the "McSimets"decontamination technology with the use of biopolymer supramolecular preparations as effective means of single-stage decontamination of equipment and waste to a level of radioactivity that does not require burial has been experimentally proven.
We propose to consider the possibility of correcting the concept of decommissioning of nuclear power plants

and the management of radioactive waste and the transition from burial to their complete decontamination directly at the places of formation.

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