

COMPLEX RADIATION AND HYGIENE STUDIES OF RADIATION IMPACT FACTORS ON PRODUCTION PERSONNEL, MIXED NITRIDE URANIUM-PLUTONIUM FUEL FOR FAST NEUTRON REACTORS

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This work is carried out in order to assess the compliance of the radiation protection of personnel working at the complex experimental installations of JSC «SChE» with the requirements of the national radiation safety standards to limit the generalized risk of potential exposure and the IAEA recommendations for not exceeding the control level of the minimum significant radiation risk.

On the basis of monitoring the dynamics of the ambient dose rate equivalent (ADER) of photon and neutron radiation ADER at the workstations of the complex experimental installations 1 and 2, the regularities of the dose formation have been studied. Doses of external exposure of personnel were estimated. In accordance with the recommendations of the ICRP and the IAEA, the radiation risks of personnel were assessed.

The report will present the estimates obtained for the personnel working at the complex experimental facilities # 1 and # 2 on the external exposure doses for gamma radiation and neutron radiation. The annual expected effective dose of internal exposure of personnel will be estimated, and the level of the minimum significant radiation risk will be calculated.

The results obtained and the developed methods will be used to ensure the radiation safety of personnel during the transition from experimental installations to pilot industrial implementation of the technology for the production of mixed uranium-plutonium nitride (MNUP) fuel.

Country/Int. organization

Russian Federation

Author: Prof. SAMOYLOV, Alexander (Burnasyan Federal Medical Biophysical Center of Federal Medical Biological Agency.)

Presenter: Prof. SAMOYLOV, Alexander (Burnasyan Federal Medical Biophysical Center of Federal Medical Biological Agency.)

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