

## RADIATION CHARACTERISTICS OF NEW GENERATION NUCLEAR MATERIAL

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Nowadays the increase of nuclear industry effectiveness is connected with the solution of two principle tasks. The first task is connected with the regeneration of the irradiated fuel (SNF) and its return to the nuclear cycle. The second – increase of the burn-up depth of the operating oxide fuel  $UO_2$  as well as new types of perspective fuel compositions like  $(Pu,Th)O_2$ ,  $(U,Pu)O_2$ ,  $UC/(U,Pu)C$ ,  $UN/(U,Pu)N$ .

All these leads to the increase of SNF volume, complication of ecological situation, nuclear and radiation hazard of existing nuclear reactors and nuclear power installations of new generation.

The researches carried out in [1,2] showed that in the next 15–20 years there will be an increase of SNF volume accumulation by 2.5–3 times in the world. In Russia currently there is an urgent problem of SNF of uranium-graphite reactors (UGR) and other reactor installations (RI), the fuel of which is not reproduced, but is stored in at-reactor storages at nuclear power plants (NPP).

The increase of operating  $UO_2$  burn-up depth as well as appearance of new perspective ceramic types of fuel for existing reactors and nuclear power installations (NPI) of the new generation require development of conceptually new approaches to procedures of handling such fuel, which is conditioned by safety of existing transport means and long-term storage systems.

The authors of the present work consider the methodology of handling and operational use peculiarities of dry-storage systems of SNF. It allows developing technical and regulatory requirements for handling SNF of new type NPI.

### REFERENCES

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