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CHALLENGES FOR DEVELOPMENT OF PHYSICAL PROTECTION OF SMALL MODULAR REACTORS

Small modular reactors, as a new type of reactors, have great potential for power generation and other purposes, and can be designed both as land and floating versions.

The configuration of small modular reactors (siting, auxiliary facilities, reactor plant) has a number of new features that require adaptation of existing physical protection solutions. At the same time, in accordance with the fundamental principles of the Convention on the Physical Protection of Nuclear Material and Nuclear Facilities, the establishment of a physical protection system is based on the category of nuclear material. Thus, the system of physical protection of small modular reactors (regardless of their size and design) must be effective and meet the characteristics of threats in the placement location of a low-power nuclear power plant.

The Russian Federation has a unique successful experience in the operation of the physical protection system of a floating small modular reactor in the city of Pevek (floating power unit “Akademik Lomonosov”) –the only operating model of small modular reactor technology.

The general challenges for development of physical protection system of small modular reactors will be discussed in the paper.

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