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Design solutions for nuclear transportable power plants with SMRs to facilitate the application of the IAEA safeguards and support the nonproliferation regime

With the growing demand for electricity, there is an increasing interest in designs of small reactor plants, which enable the power supply to a consumer in areas remote from large electric grids as well as reduction of production costs.

The orientation towards the use of such reactors in foreign countries stimulates Russian developers to search for technical solutions aimed at facilitating implementation of the IAEA safeguards at these facilities.

A key feature of contemporary Russian small modular reactor designs is their possibility to be manufactured and loaded with nuclear fuel at specialized enterprises with further movement to the operating site of the consumer.

The paper shows that this feature and the modular structure of the plant used for Russian transportable small modular reactor designs with factory fuel loading excludes uncontrolled access to nuclear material during the processes of movement and operation of the plant, while nuclear and radiation hazardous operations, including refueling upon the completion of the core campaign (refueling period is about 10 years) and the final stage of decommissioning can be performed exclusively at specialized service centers.

In this connection, the main emphasis in the application of IAEA safeguards during the operation of such plants, can be placed on containment and surveillance measures.

Which ”Key Question” does your Abstract address?

NEW1.6

Which alternative ”Key Question” does your Abstract address? (if any)

NEW1.1

Topics

NEW1

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