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## **EXPERIENCE OF FLOATING NUCLEAR POWER PLANT (FNPP) OPERATION. TECHNICAL RESULTS ASSESSMENT.**

Small modular reactors (SMRs) are demanding in many countries in the world. SMRs have a range of advantages with regard to energy supply to remote areas. Russian Federation has unique experience in the implementation of floating nuclear power plant with KLT-40S reactor and advanced land-based modular reactors RITM200.

FNPP has a unique design. This small NPP is under operation in severe environmental conditions of the Far North of Russia.

Since 2019 to present days, several problems have been identified in operation of FNPP equipment and systems. Structural and design deficiencies have been analyzed. Then relevant action plans have been developed and implemented in the following areas:

- replacement of defective internals of steam generators of FNPP;
- handling of fresh nuclear fuel;
- elimination of constructive and design deficiencies of some FNPP equipment;
- spent nuclear fuel handling;
- preparation for FNPP repair at the place of permanent basing without interruption of electrical and steam generation
- optimization of transport and technical ways of removing solid radioactive waste and liquid radioactive waste.

The results of the analysis of the FNPP operating experience are used to identify future directions of development as follows:

1. New core development with an increased power capacity and a longer duration of the fuel campaign.
2. Implementation of a modernized steam generator with straight-tube design to increase its reliability.

### **Country OR International Organization**

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### **Confirm that the work is original and has not been published anywhere else**

YES

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