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BOR-60 REACTOR OPERATIONAL EXPERIENCE AND EXPERIMENTAL CAPABILITIES

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The fast research reactor BOR-60 is one of the world's leading research reactors in large-scale testing of fuel, absorbing and structural materials to design new advanced fast reactors, pressurized water reactors, gas-cooled and fusion reactors, and demonstrate the feasibility of lifetime extension for VVER and BN-type reactors. BOR-60 was commissioned in December 1969, and by early 2017 it will have been under operation for ~275000 hours. By this parameter BOR-60 is the world's leader, and it continues to show the potential for sodium fast reactor lifetime extension.

For nearly 48 years BOR-60 has been under reliable and efficient operation, being at present almost the only operating fast research reactor that has unique experimental capabilities for integrated research in different trends in combination with well-equipped materials testing labs and fuel manufacturing and reprocessing facilities. The scientific data obtained in this reactor made it possible to demonstrate the feasibility of using materials, fuel and absorbing elements for BN-350, BN-600, BN-800, and other reactor types.

In 2014 a range of activities was carried out including equipment condition survey, calculated and experimental data analysis of operational parameters and conditions for permanent reactor components, testing of structural materials samples after long-term operation under irradiation, etc. From these results the remaining lifetime has been evaluated, and the operator made a decision on reactor lifetime extension. After reviewing a set of reactor condition documents and obtaining a favorable conclusion from an independent expert company, the relevant regulatory authority of the Russian Federation has extended the BOR-60 operating license until 2020.

Country/Int. Organization

Russia, JSC "SSC RIAR"

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