

Russia completes testing of modified VVER-440 fuel

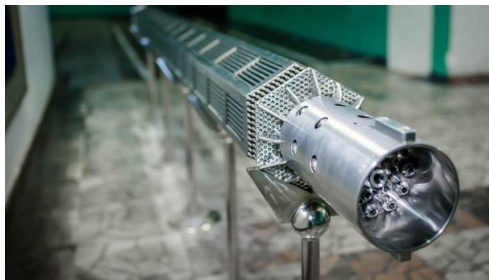
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OKB Hidropress, a subsidiary of Russian state nuclear corporation Rosatom, has completed "longevity testing" of fuel assembly models with an optimised hydro-uranium ratio for VVER-440 reactors at the Paks and Loviisa nuclear power plants in Hungary and Finland, respectively.



The modified fuel for use at Paks and Loviisa (Image: Rosatom)

Rosatom's nuclear fuel manufacturer subsidiary TVEL said longevity testing is one of the most essential milestones since its results demonstrate the behaviour of structural materials in conditions similar to those inside the reactor core. The behaviour of the fuel assembly models was studied for 1500 hours in a coolant flow within parameters "as close as possible" to reactor conditions in terms of consumption, temperature, pressure and pressure pulsations, it added.

The new modification of second-generation VVER-440 nuclear fuel enables an increase in the coolant volume inside the reactor core and optimisation of the hydro-uranium ratio, which would have a positive impact on both the technical and economic performance of the power unit, TVEL said.

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Alexander Ugryumov, vice president for research and development at TVEL, said the new fuel for the Hungarian and Finnish plants is based on a "unified solution" that would however allow TVEL to create an "exclusive final product" to meet each customer's own fuel cycle strategy and other individual requirements.

"Our technical solution with higher uranium mass enables us and our customer either to make nuclear plant operation more economically efficient by reducing the amount of fuel assemblies, or to lower the level of uranium enrichment," he said.

TVEL signed an engineering services contract with MVM Paks Ltd at the end of last year and an addendum with Fortum Power and Heat Oy early this year. After the full testing cycle, batch production and licensing of the nuclear fuel will start, with first deliveries of the newly modified fuel assemblies expected to begin in 2021/2022, TVEL said.

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