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**Novovoronezh NPP Launched AI-Based Unique Digital Operator Assistant**

*The Russian artificial intelligence will predict events for a 30-minute period ahead*

**An Operator Information Support System (OISS) based on the Russian SW is brought into trial operation at Novovoronezh NPP Power Unit 6 (Branch of Concern Rosenergoatom JSC, Energy Division of Rosatom State Corporation). The project was implemented by the specialists of Rosatom Automated Control Systems JSC (I&C and Electrical Engineering Division of Rosatom State Corporation) and LLC IF SNIIP-ATOM with participation of the plant personnel.**

OISS or, as they say today, artificial intelligence, transmits information to the operating personnel about parameter changes in the power unit control process to warn the personnel of possible deviations, and predicts the development of an event for a 30-minute period ahead, helping to make correct and timely decisions and significantly improve safety.

Operator Information Support System covers 360 process systems of the modern power unit, about 200 interactive procedures and 20 functions ensuring significant decrease of the information load on an operator.

The consequences of an error due to incorrect operator's actions may be very large. Contingency shutdown of a power unit with 1200 MW VVER reactor leads to a multi-million-dollar losses. On a daily basis, a power unit with VVER-1200 on average generates 24.3 million kW·h of energy. This energy is sufficient for supplying power for one month to 100 thousand flats each accommodating a family of four.

“Introducing OISS, we are reaching a new level of automation. This system extends the approach to a control process by converting available data into a prediction, and the prediction - to preventive actions. These technologies demonstrate capabilities of our digital development and broaden the horizons both for NPP and other power and industrial facilities,” said **Andrey Butko**, Chief Executive Officer, RASU JSC.

Novovoronezh NPP has been a pilot site for implementation of the Operator Information Support System since 2014. During this period of time, a large amount of data was collected.

“OISS has an advantage - it is not an abstract model but an exact digital copy of a power unit operating with actual parameters in a real-time mode. Before, an operator had to analyze the data obtained from more than 12 thousand sensors himself/herself using long technical documents. Nowadays, OISS displays the information with clear instructions in accordance with the regulatory documentation,” said **Maksim Tuchkov**, Deputy Chief Engineer for Operations, Phase 4, Project Supervisor, Novovoronezh NPP.

In the future, the system will be implemented at all modern power units. This implementation will also significantly increase competitiveness of the Russian designs of NPP power units.

**For reference:**

**Novovoronezh NPP (Branch of Concern Rosenergoatom JSC in Novovoronezh, Voronezh Region)** is the first NPP in Russia based on VVER-type reactors (vessel-encapsulated pressurized water reactors). Total of seven power units with VVER-type reactors were constructed and commissioned at Novovoronezh site. Four power units are currently in operation.

**Rosatom State Corporation I&C and Electrical Engineering Division (the managing company is Rosatom Automated Control Systems JSC, RASU JSC)** unites enterprises, companies and subdivisions that create control systems, non-destructive testing systems, innovative electrical and conversion equipment, and special-purpose digital solutions for the industry. RASU JSC consolidates years of experience in the nuclear industry on assurance of process safety. The company is a single industry integrator of I&C, Electrical Engineering, Nuclear Instrumentation businesses. It takes part in global energy projects in Asia, Central Europe, Africa and the Middle East.