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Rooppur NPP: Passive Heat Removal System installed at unit 2 in record time

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The inner and outer parts of the steel structure of the Passive Heat Removal System (PHRS) Deflector were installed in the design position of unit 2 of the Rooppur Nuclear Power Project in just two days, which is a record for such operation. The Passive Heat Removal System operates without human interference and any power supply source.

“Installing two parts of PHRS Deflector in the design position in two days is a record. The next step is the installation of steel structures of PHRS deflector service platforms and installation of air ducts of the passive heat removal system”, said Alexey Deriy, ASE Vice President and Director of Rooppur NPP construction project.

The Deflector is a metal cylinder made of stainless steel, which weighs 215 tons and has a diameter of about 25.5 meters. Installation of the PHRS Deflector takes place in two stages and is a complex job. The maximum allowable deviation during the installation of heavy steel structures weighing 135 and 80 tons on the spherical surface of the reactor building dome is 10 mm. The inner and outer parts of the deflector were installed in the design position at an elevation of +64.5 meters. Now the reactor building is 74.85 meters high.

Two lead geodetic engineers, a team of five highly qualified welders, and 42 installers of steel structures were engaged in the works.

The PHRS deflector is an aerodynamic structure designed to augment thrust in the ventilation channel and to increase the efficiency of the ventilation system. Operation of the entire system is based on natural circulation rules: the atmospheric air comes into heat exchangers, is heated up, then rises through air ducts to the outlet header located on top of the dome and returns to the atmosphere, thus cooling down the reactor compartment.

Rooppur NPP has two units of Generation 3+ VVER-1200 reactors with a total capacity of 2,400MWe and is being constructed under the Russian design that fully complies with all the international safety requirements. The life cycle of the reactors is 60 years with the possibility of extension of the service life for another 20 years. The project is implemented by the Rosatom Engineering Division.