

Close call at Zaporizhzhia – but threat of nuclear disaster continues



The six reactors (one partially hidden) and two cooling towers of the Zaporizhzhia nuclear plant.

As the war of attrition in eastern Ukraine grinds on, with Russia making little progress in its effort to complete the “liberation” of the Donbas and Ukraine making little progress in recapturing the territory taken by Russia in eastern and southern Ukraine, there have been growing fears that there could be a large-scale disaster at Ukraine’s Zaporizhzhia nuclear plant. On August 25, there very nearly was one – caused by the interruption to the plant of electricity needed for the operation of its cooling and security systems. As President Volodymyr Zelenskyy said in his address to the nation that night, Ukraine and Europe were “one step away from a radiation disaster.”

The plant is in Zaporizhzhia oblast in the small city of Enerhodar on the south side of the Dnipro River, a few miles southeast of the city of Nikopol (pre-war population of 100,000) and about 30 miles southwest of the city of Zaporizhzhia (pre-war population of 700,000). It’s the largest nuclear plant in Europe and one of the largest in the world; when all six reactors are functioning, they produce half of Ukraine’s nuclear power and 20 percent of the country’s electricity. Taken by Russia in March when it took a large stretch of territory on the south side of the Dnipro, two of the six reactors continue to operate under Russian control and with Ukrainian employees. But with Russia using the territory near the plant as a base from which to launch rockets and artillery, and Ukraine responding and attacking the Russian forces in the area, there has been a looming risk for some time of a full-scale catastrophe – a meltdown – if the cooling system for the reactors and fuel rods were damaged or destroyed or otherwise prevented from functioning. That could happen if the plant were cut off from Ukraine’s national power grid, either deliberately, as Russia has threatened to do, or by damage to or destruction of the power lines that bring electricity into the plant. While there is a back-up diesel-fueled generating system at the plant,

there was some uncertainty whether it could produce the amount of electricity required for the cooling and security systems. Many have been urging Russia for some time to allow a team from the International Atomic Energy Authority (IAEA) to inspect the plant to ensure that it remains connected to the national power grid and that the back-up diesel system can, if needed, provide sufficient electricity to operate the cooling system for the reactors and fuel rods.

On August 18, UN Secretary General António Guterres, Turkish President Recep Tayyip Erdogan and Ukrainian President Volodymyr Zelenskyy met in Lviv to take stock of the July 22 agreement between Ukraine and Russia, brokered by Erdogan, that allowed the shipment of grain from Ukraine's port cities on the Black Sea. Although primarily concerned with the fact that only 24 ships had left fully loaded since the deal was struck and Ukraine had as a result exported only half of what it did in the same period last year, the leaders also discussed the danger of a nuclear disaster at the Zaporizhzhia plant. Erdogan warned of "another Chernobyl" – referring to the explosion in April 1986 of reactor #4 at that nuclear facility in northern Ukraine that sent a large radioactive cloud across Europe – a cloud that, among other things, caused cancers that killed several thousand people.

On August 19, French President Emmanuel Macron and Russian President Vladimir Putin spoke by phone and agreed on the importance of sending an IAEA team to the Zaporizhzhia plant as soon as possible. According to the Elysée readout, "President Macron once again emphasized his concern over the risks that the situation at the Zaporizhzhia plant poses to nuclear safety and security, and expressed his support for sending a mission of IAEA experts to the site as quickly as possible, under conditions approved by Ukraine and the UN. The Russian President indicated his agreement to the deployment of this mission and the terms that were discussed. The two presidents will speak about this subject again in the next few days following discussions between the technical teams and before the deployment of the mission."

According to the Kremlin's readout of the call, "The discussion focused on various aspects of the situation around Ukraine. Vladimir Putin in particular stressed that the regular strikes on the Zaporozhye [Russian spelling] Nuclear Power Plant by the Ukrainian military creates the danger of a major nuclear disaster that could lead to radiation contamination of vast territories. Both leaders noted the importance of sending an IAEA mission to the power plant as soon as possible to allow experts to assess the situation on the ground. The Russian side confirmed its readiness to provide the necessary assistance to the agency's inspectors....The presidents of Russia and France agreed to maintain contact on the issues raised."

According to Energoatom, the Ukrainian operator of the plant, the August 25 crisis occurred because three of the four 750 kilovolt lines that connect the plant to the Ukrainian power grid had previously been damaged by Russian shelling and that day the last 750 kV line supplying electricity to the plant was disconnected from the national grid on two occasions by fires at ash pits at a nearby coal-burning power plant. Fortunately, the nuclear plant remained connected to a 330 kV line from the nearby thermal plant and the back-up diesel generators at the plant immediately kicked in and provided the electricity needed to keep the cooling and safety systems functioning. But as Zelenskyy said that evening, "If the diesel generators had not turned on, if the automation and our station staff had not reacted after the blackout, then we would already be

forced to overcome the consequences of a radiation accident...Russia has put Ukraine and all Europeans in a situation one step away from a radiation disaster.” The next day, Energoatom said the plant had been reconnected to the electricity grid.

Commenting on the close call, IAEA Director General Rafael Mariano Grossi said what had happened further underlined the urgent need for an IAEA expert mission to travel to the facility: “Almost every day there is a new incident at or near the Zaporizhzhia Nuclear Power Plant. We can’t afford to lose any more time. I’m determined to personally lead an IAEA mission to the plant in the next few days to help stabilise the nuclear safety and security situation there.” Last Sunday, IAEA reported that Grossi “was continuing his consultations with all parties with the aim to send an IAEA expert mission the Zaporizhzhia nuclear plant in the next few days to help ensure nuclear safety and security there.”

Last Tuesday, the IAEA mission arrived in Ukraine and Grossi met with Zelenskyy to go over the logistical details of the mission – most importantly, of course, how to ensure the safety of the team as it travels to the plant. The next day the team arrived in the city of Zaporizhzhia, and last Thursday, after traveling in a UN motorcade through the front lines of the conflict, the 14-person team arrived at the plant. After the team arrived, Grossi said, “The IAEA is now there at the plant and it’s not moving. It’s going to stay there. We’re going to have a continued presence there at the plant with some of my experts.” But, he added, “I will continue to be worried about the plant until we have a situation which is more stable.” On Saturday, Grossi said the plant was disconnected from the last of the four 750 kV lines but was still able to obtain electricity through the reserve line linking it to the nearby thermal power plant. Grossi said, “We already have a better understanding of the functionality of the reserve power line in connecting the facility to the grid. This is crucial information in assessing the overall situation there.” However, one of the two reactors that were still operating was disconnected because of the grid restrictions, meaning that the remaining reactor is producing electricity for the cooling and other safety functions, as well as for households and businesses in the area.

The threat of a meltdown has been avoided – for now, at least. But the safety of the plant seems to depend now on the continued connection of the reserve line to the nearby thermal power plant and the diesel generators at the plant. Hopefully, the presence of the IATA team will take steps to ensure that the reserve line to the nearby plant remains intact and the diesel generators can continue to operate if needed.

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