

WENRA position on the safety situation of the Zaporizhzhya NPP
with regards to the consequences of the Kakhovka dam rupture

During the night of the 5th to the 6th of June, the Kakhovka dam, located 150 km downstream of the Zaporizhzhya NPP (ZNPP), was severely damaged. This led to a decrease in the water level of the Kakhovka reservoir which is used to supply water to the ZNPP.

As highlighted in WENRA's March 23rd, 2022 statement, a fundamental safety function of nuclear power reactors is to ensure continuous cooling of the reactor core and the spent fuel pools, which requires reliable sources of electrical power and water.

During normal operation, the six ZNPP reactors are cooled using water pumped from the Kakhovka reservoir into a main cooling pond next to the site. Since June 8th, the water level of the reservoir dropped to levels that prevent water being pumped to the main cooling pond.

All reactors of ZNPP have been in a shutdown state since at least September 2022. The residual heat produced by the nuclear fuel, located either in the cores or the spent fuel pools, is relatively low. The supply of cooling water for the six units is ensured by smaller sprinkler cooling ponds that should provide sufficient cooling water for several weeks considering the low residual heat in the reactors. In addition, water can be pumped from the main cooling pond to the sprinkler cooling ponds, thus ensuring a large period of autonomy for the site, provided the main cooling pond remains intact. Alternative cooling water supplies could also be made available using mobile pumps to pump Dniepr water to the sprinkler cooling ponds.

Based on the shutdown status of the six ZNPP reactors and the availability of cooling water supplies, WENRA considers that there is no immediate safety concern at the ZNPP resulting from the destruction of the Kakhovka dam.

However WENRA emphasizes that maintaining the integrity of the main cooling pond is important for safety.

WENRA reminds also that maintaining the safety of ZNPP requires ensuring a continuous electricity supply, in particular for the functioning of the cooling pumps and safety systems. ZNPP is currently relying solely on one remaining 750 kV power line for off-site electricity, which has been cut repeatedly since the military conflict began in February 2022, and the back-up 330 kV lines are still not available after being disconnected more than three month ago.

Considering the current situation in Ukraine and its potential consequences on the safety of the nuclear facilities, notably on the ZNPP, WENRA underlines the importance of ensuring all of the ZNPP reactors remain in shutdown state to maintain the residual heat at the lowest level possible and increase the period of grace available in the event of loss of cooling to the reactors, due either to a lack of water or a loss of power supplies.

Furthermore WENRA recalls that the ZNPP licensee shall comply with the requirements of SNRIU, which is the sole legally competent regulatory body for the site.