

Situation at Chernobyl NPP after failure of external power supply

On March 3, at about 11:30 local time, the Ukrainian grid operator NPS Ukrenergo reported on Facebook that the previous 750 kV line supplying the Chernobyl site, which for several days had represented the only connection to the Ukrainian national grid, was interrupted as a result of acts of war. Therefore, the power supply for the site from the national grid of Ukraine is no longer available. In this case, the operating regime of the Chernobyl NPP provides for the supply of safety-relevant consumers, such as the power plant and the wet storage facility for spent fuel elements (ISF-1), by emergency diesel generators (EDG).

Two stationary EDGs exist at the site, which can be supplied with diesel for at least 48 hours, according to the grid operator NPS Ukrenergo and the regulatory authority SNRIU. One EDG is able to provide for the emergency power supply to feed the safety-relevant consumers. In the event that both stationary EDGs fail, a mobile EDG exists at the site that can be connected to the ISF-1 supply for a maximum period of eight hours and provide power to the ISF-1.

Even in the event of a failure of all EDGs, a rapid and major release of radioactivity is not to be expected in the current condition of the site. The fuel assemblies in ISF-1 have been stored there for at least 20 years. The decay power of these fuel assemblies has until now diminished to such an extent that cooling can be ensured by the existing water inventory without forced circulation. Possible evaporation would only lead to a significant loss of water after several weeks.

This represents a problem more from the radiation protection point of view than from the nuclear safety point of view, since in the event of a loss (even partial) of the storage pool water, the radioactive shielding effect would diminish, so that it would no longer be possible for operating personnel to enter the storage facility. Even in this case, however, no safety-relevant situation would arise for the vicinity of the power plant or for regions further away.

The technical facilities for packing the fuel assemblies into storage casks for dry storage in ISF-2 had already been suspended previously, so that there is no safety-relevant situation there either. The storage facilities for solid and liquid waste at the NPP site also do not pose any safety-related risk in the current situation.