

The 10th of August 2022

WENRA position on the safety situation of Zaporizhzhya NPP after reported shelling activities

On the 6th and 7th August, the Ukrainian Nuclear Safety Authority (SNRIU) informed the IAEA of several shelling activities against Zaporizhzhya nuclear power plant (ZNPP).

Given this worrying situation, WENRA has led a technical group¹ to assess once again the safety level of ZNPP based on information reported to date to IAEA.

- **General situation**

Damage at the ZNPP site was reported following shelling on the 5th to 6th August.

The shelling impacted the electrical power supply, a nitrogen-oxygen station and the dry spent nuclear fuel storage facility. The safety significance of these reported damages has been evaluated and is presented hereafter.

No direct damage to the reactors or spent fuel pool occurred and no radioactive release was detected on-site by the operator. The available radiation monitoring networks in the environment also showed no increase in radiation.

- **Electrical power supplies**

As a result of shelling, several explosions occurred near the electrical switchboard of the 750 kV external power supply line, which caused the shutdown of the electrical power transformer and two backup transformers.

The emergency protection system of unit 3 was triggered and backup safety diesel generators were set in operation to maintain the power supply to the reactor and spent fuel pool cooling systems. Electrical power supply status of the 5 other units of ZNPP was not affected by this shelling.

Each ZNPP unit can rely on three emergency diesel generators, one generator is sufficient to maintain both the reactor and its spent fuel pool in a safe state. Moreover, two additional “bunkerized” diesel generators are also present on site.

¹ This technical group is composed of experts from WENRA and some of their technical support organizations (Institut de Radioprotection et de Sûreté Nucléaire from France). It includes also experts from the Directorate General for Energy and the Joint Research Centre from the European Commission.

Each diesel generator has a fuel tank giving it an estimated autonomy of one week and which can be refilled if needed to operate for a longer period.

- **Damage to a nitrogen-oxygen station**

A nitrogen-oxygen station, located near radioactive waste tanks, was also shelled, triggering a fire that was quickly extinguished by on-site firefighters.

The nitrogen produced by the damaged station is mainly used to inert tanks to protect against the risk of hydrogen explosion.

During normal operation, liquid and gaseous radioactive effluents from reactor circuits are treated and temporarily stored in dedicated waste tanks to allow for radioactive decay before discharge into the environment.

The nitrogen from another station on site, located further away, can still be used.

No damage to the radioactive waste tanks was reported.

- **Damaging the dry spent nuclear fuel storage facility**

There was also shelling near the dry spent nuclear fuel storage facility building. Limited damage was reported to walls, roof and window openings caused by buckshot or by the impact of objects sprayed by the explosion. Communication cables for the radiation control information and measurement system on the dry spent nuclear fuel storage facility are likely to have been damaged.

However, no damage to the stored spent fuel containers was reported, ensuring that both their containment and thermophysical properties are unaffected.

To WENRA's knowledge, based on technical information available to date, damages induced by shelling activities against ZNPP had only limited impact and did not cause an accidental situation on any of the 6 reactors and associated spent fuel pools. However, WENRA remains concerned by the weakening of the safety level of ZNPP, especially the electrical power supply status.

No nuclear power plant has ever been designed to consider potential war-induced damage in its safety demonstration. WENRA therefore reiterates its previous position: it is imperative to exercise the utmost restraint and vigilance to prevent any direct or indirect impact of military operations on nuclear installation safety.