



Pic. 1. Chambers and drainage wells.

POLYETHYLENE PIPES PROVIDES SAFETY TO NUCLEAR POWER PLANT

Press-service of BELPOLYPLASTIC

A nuclear power plant is more than a reactor and a turbine spinning the generator; there are numerous auxiliary systems that ensure its safe, ongoing operation.

One of the major safety requirements is a large volume of water to cool the reactor and help maintain its stability.

Given the strict requirements for the reliability of water supply systems, PE 100 SDR 26 1200 x 45.9 pipes were chosen for use at the Belarus Nuclear Power Plant near Ostrovets.

The water supply system of a Nuclear Power Plant contains many high-tech components, as well as pipes; one of the most important is the system to discharge water into the drain wells.

It was initially planned to install about 50 cast iron flange outlets with diameters of 1200 mm and 400 mm branches to facilitate quick water discharge from the cooling system

pipelines. This would have taken several days to install. It would also have required the addition of two flanges which would have had to be welded into the pipes, thereby increasing the chamber size. Moreover, the transition from one material to the other complicates the pipeline design process and can lead to potential risks.

Fortunately, BELPOLYPLASTIC specialists offered this effective solution to simplify the process: Replace the cast iron outlets with tapings into the main 1200 mm PE pipe using a Georg Fischer Piping System large diameter electrofusion saddle, together with a BELPOLYPLASTIC 45° PE elbow.

Supervised by the BELPOLYPLASTIC Service Centre specialists, the contractors installed the saddle connection for water discharge into the drainage wells.



The branch production schedule works like this:

- clean and mark the pipe at the assumed connection point;
- install the special frame into the tapping point;
- peel away the oxidation layer that prevents electrofusion welding from the main 1200 mm pipe using special tools;
- position the saddle and press it onto the pipe with sufficient force to minimise the gaps between the saddle and the pipe;
- weld the saddle to the pipe using a Georg Fischer MSA 400 Plus electrofusion welding machine;
- install the hole-drilling unit to make the hole inside the saddle's branch connection;
- drill the pipe and remove the drilling tool;
- weld the saddle branch pipe with a connection element using electrofusion coupling;
- install and connect the valve with a dismantling joint, then connect the 400 mm pipes to the drainage wells.

The works took place in previously installed concrete chambers, and were complicated by the fact that some sections of the pipeline had water in them. A test hole was drilled to drain the remaining water, before the main hole was drilled inside the saddle branch.

The application of electrofusion fittings and PE products was found to be best solution, both technically and financially.

Pic. 2. Saddle positioning onto the pipes



Pic. 3. Completed branch