

Syndicat des Eaux de Tavannes et Environs, WWTP Loveresse

## New electrical distribution without interruption of operation

Loveresse's wastewater treatment plant (WWTP) treats the wastewater of the municipalities in the catchment area of the Syndicat des Eaux de Tavannes et Environs with a total population equivalent of around 7000. Like all WWTPs in the Canton of Berne, it is subject to the condition imposed by the Office for Water and Waste of the Canton of Berne that the conditions of discharge of the treated wastewater into the receiving watercourse be complied with even in the event of a power failure. WWTP Loveresse therefore had to install an emergency power supply and integrate it into its electrical switchgear.

The choice fell on a diesel-operated emergency power generator, which is often used for such cases in public buildings and facilities. This is supported on the one hand by the high energy density of the diesel and on the other by the secure supply situation. This should become even safer in the event of power failures in the canton of Berne, as the canton is currently working out a concept to ensure that the necessary diesel deliveries are guaranteed at any times.



The diesel-powered emergency power generator supplies 125 A of power, which guarantees more than a third of the mains supply in the event of a power failure.

### All services from a single source

In the event of a power failure, the system must be disconnected from the public grid and switched to emergency operation. For this additional operating mode, the electrical distribution had to be adapted accordingly. However, it turned out that the existing plant had various age-related defects. For example, personal protection was not guaranteed, and some electrical components were no longer available, which severely restricted

operational safety. A conversion of the old distribution system proved to be unprofitable, so that the decision was made in favour of a new system. Based on its experience in both automation and electrical planning, Stebatec AG was able to plan and carry out the entire project. The usual interfaces, which often result in misunderstandings or coordination problems, were thus eliminated. This allowed the processes to be greatly simplified and an extremely tight schedule could be pursued.

### Smooth execution according to script

The processes of a wastewater treatment plant run continuously around the clock and do not endure long interruptions, especially in the biological treatment stage. It was therefore of the utmost importance that operation was maintained at all times during the changeover from the old to the new electrical distribution system. For this demanding task, planning that took all aspects into account and perfect organization were the basic requirements. In the end, all work could be carried out on site in just one working week, with the new emergency power generator playing its first important role.

On Monday and Tuesday, the new distribution was prepared so far that on Wednesday morning it was possible to switch from the old electrical distribution to a provisional distribution fed by the generator. This was followed by the dismantling of the old main distribution board and the construction of the new one. After the meter had been installed and the old cables connected to the new distribution board, it was possible to switch from provisional emergency operation to the new distribution board at 3 pm. The rest of the week was used for the finishing touches and cleaning. All work steps went smoothly and according to plan.



The new switchgear cabinets with the modern electrical distribution once again.

### Reliable distribution with energy monitoring

The new electrical distribution system is state of the art and features not only contemporary personal protection but also surge protection. The new components also ensure complete operational reliability. The modular design also allows expansions to be made at any time and considerably facilitates the possible re-placement

of components. Furthermore, reserves have been kept free in order to enable future expansions. The distribution is designed for a current strength of 400 A, but currently only runs at 300 A. Here, too, a reserve is available that can be mobilised in the future.



With the new electrical distribution system, the main switch can be used to switch from the public power grid to emergency operation.

Another component of the new electrical distribution system is energy monitoring. The energy consumption of the various WWTP system components is now measured individually and continuously document-ed. As soon as sufficiently long and meaningful data series are available, savings potentials can be deter-mined, and energy optimisations can be tackled.