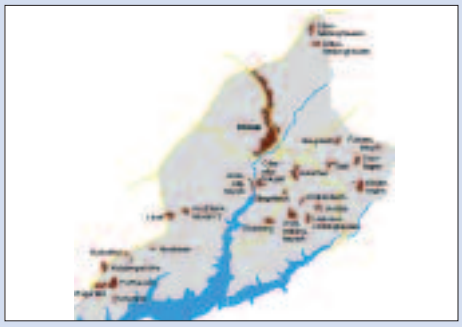
PRODUCT + SOLUTION

Reliably Controlled Waste-Water Disposal Guarantees Safety of Drinking Water

by Alexander Schmidt, Jung Pumpen



Protected drinking-water area in the South: the town of Wermelskirchen covers an area of approx. 75 km². (Source: Franz Fischer Ingenieurbüro GmbH)

Steinhagen/Wermelskirchen: around 37000 people live in the town of Wermelskirchen east of Cologne. Not all of these live in the town itself, but in a fairly densely populated rural area covering about 75 square kilometres. The reliable disposal of the waste water from all the households connected to the municipal sewerage system is therefore a challenge to the planners of the local sewage works. For the recent expansion of the municipal network, the town decided to install modern control technology which is compatible not only with existing systems but also with state-of-the-art communications and remote-control systems.

Today, about 97 percent of the residents of Wermelskirchen are connected to the municipal sewerage system, whether they live in the rural surroundings or the recently constructed housing estates. The sewage-disposal concept must fulfil the strict requirements of the drinking-water protection regulations because the south of the town adjoins the reservoir "Grosse Dhünn", the largest drinking-water reservoir in the catchment area of the river Wupper with a capacity of 81 million m³ of raw water.

Drinking-Water Protection Area, Class I

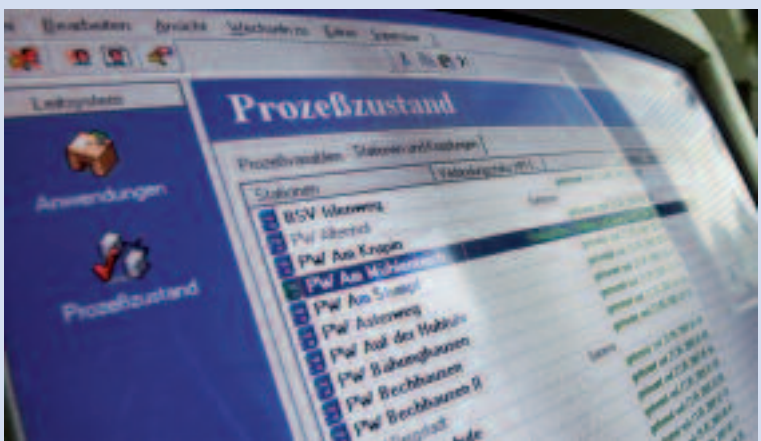
The sensitivity of the areas on the shores of the reservoir prompted the authorities responsible for the safety of drinking-water supplies to participate in the planning and financing of sewage-disposal technology in the catchment area of the Grosse Dhünn.

In the year 2000 the first planning discussions took place between representatives of the town of Wermelskirchen, the Wupperverband (local water authority), the engineering company Fischer from Solingen and the sewage-disposal company Jung Pumpen. The continuous expansion of the town made an equivalent expansion of the waste-disposal capacity necessary. It was planned to add between 50 and 60 pumping stations to those already in operation. The requirements of the municipal sewage works were clearly defined. The new facilities had to be integrated into the town's modern process-control system via a remote-signalling system as well as being fully compatible with the existing control software while remaining as economical as possible.

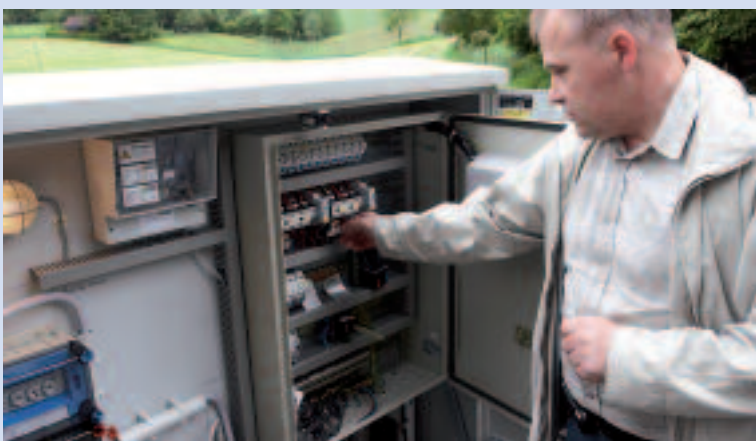
Flexible Solution to Customer Specification

Of the 130 pumping stations currently in operation (including 7 main pumping works) the 95 with control systems by Jung Pumpen, are connected to the HST process-control system HydroDat® V8. 30 of them have an additional HST HydroCard control system, 11 an additional HST TeleMatic and 54 are fitted with the latest microprocessor control systems from Jung Pumpen which require no further coupling components. For the 95 pumping stations, the Wermelskirchen authorities also decided to install three flexible types of control system from Jung Pumpen. The

Modern process-control system: all the information required from 130 pumping stations are transmitted promptly to the central control system at the municipal sewage works.



130 pumping stations and 7 main pumping works ensure reliable sewage disposal for the 37000 inhabitants.



Drinking-water conservation area: the southern part of the town of Wermelskirchen borders the shore of the "Grosse Dhünn" reservoir.

areas were initially divided into four sections depending on the amount of detail in the information required from the pump stations.

The control systems "BasicLogo" and "EasyLogo" produced by Jung Pumpen were used for the control systems in the pump stations in sections 0 and 1. The former has a reliable board-type control, the latter a more convenient microprocessor type control system. Both function with single messages, are connected with the process-control system and signal potential problems (pumps, power supply, flood alarm etc.).

In the 54 pumping stations of the construction sections and the refitting of existing equipment, the new "HighLogo" technology from Jung Pumpen was used. With this new generation of microprocessor control system, direct linking to the process-control system is possible. As a fully-fledged remote-signalling system it has all the control and interrogation facilities which would be available directly on site. For example, important information and problem messages are transmitted automatically to the mobile telephone of monitoring personnel, thereby allowing quick action to be taken wherever necessary.

The municipality of Wermelskirchen, the Wupperverband the engineering company and the planners of Jung Pumpen have been in close contact since the year 2000.

"HighLogo" - Ready for Action and Optionally Extendable

The amount of information required and the desired control functions can be set as required. The number of operating hours, motor protection, limitation of running time, motor current, run-down time, forced evacuation and the duration of possible test runs can all be set as required by means of the user-friendly operating interface of the process-control system. It permits fast and easy setting of the equipment and the display of the last 500 event messages with date and time for continuous recording.

The new technology received unreserved praise from Georg Marschollek of the Wermelskirchen sewage works. "The catchment area round the "Grosse Dhünn" and the uneven distribution of the residential areas in Wermelskirchen make the infrastructure a constant challenge from the point of view of sewage disposal. The existing systems have been constantly extended over the years and had to be coordinated with one another. The full compatibility of the pumping stations and control systems installed by Jung Pumpen in the past few months has made this coordination process much easier. Another important benefit has been the reduction of costs. Due to the individual design of the systems from Jung Pumpen according to our information requirement, it has been possible to reduce the purchasing costs by around 50 percent compared to conventional "overdesigned" systems", says Georg Marschollek, summarising his experience with the installation and running of the new equipment.

This coordination of existing equipment is also reflected in routine operation. Over the past 12 months there has been an average of only one unexplained signal or false alarm per month.

"In my opinion, the stability of the system in general deserves top marks and the easy operation of the "HighLogo" program makes day-to-day work with the process-control system much easier", says Georg Marschollek.

Since the year 2000, the town of Wermelskirchen, the Wupperverband, the engineering company and the planners from Jung Pumpen.