XRIPPER: TROUBLE-FREE WASTEWATER TRANSPORT DESPITE HYGIENE ARTICLES

Case Study - Lautertal municipality

PROBLEM

Clogging of pumps by modern hygiene articles

SOLUTION

Retrofitting of the XRipper XRP136-560QD

THE CUSTOMER

Lautertal is a municipality in the Vogelsberg area. It was formed in 1971 by merging several small townships and covers an area of 5.361 km2, of which 51% is agricultural and 40% woodland. Approximately 2,400 inhabitants live in seven districts. Due to the topography and the distances involved, the municipalities treat

wastewater in six smaller treatment plants. The largest is set up for 850 EW and currently operates at about 690 EW.

The wastewater from the district of Hoergenau is collected in a combined rainwater and sanitary sewage system and conveyed to the pumping station. At the pumping station, the wastewater flows into an open pit. The incoming water passes from here to a buffer tank, pumped via centrifugal pumps to the sewage treatment plant 2 km away. The pumping system itself is installed in an underground pit. It consists of two pumps and two upstream barrier material collection tanks.

In these tanks, separation flaps hold back the impurities, which are then flushed away during the conveyance of the water. A 5.5 kW motor is installed, allowing a performance of around 40-45 m^3/h per each centrifugal pump.

THE PROBLEM

This system has proven itself for years. However, the increasing use of new hygiene items (wet wipes) and grooming products (micro cloths) has pushed the system to its limits until it was impossible to reliably prevent impurities from entering the pumps. Over the last five years, this has led increasingly to clogging and faults. Particularly during heavy rain events, many impurities are washed into the pumping station, becoming a problem.

A campaign to raise awareness in the municipality about proper disposal of wet wipes and other hygiene articles only resulted in a temporary improvement in the situation. Finally, from January to May 2016, 32 maintenance jobs were necessary to deal with clogs caused by wet wipes, cleaning cloths, feminine hygiene products, and sometimes even underwear.

Under normal conditions, Armin Wolf (worker of Lautertal municipality) will need around an hour to deal with the problem. If a large amount of disruptive matter (in extreme cases) were flushed into the pumping station, the centrifugal pumps would clog again immediately after the maintenance job. Then, he would need to clear the pumps again.

THE SOLUTION

To reduce the cost and workload of these disruptions, a test installation of a Vogelsang XRipper XRC-SIK was fitted in the open collective shaft before the buffer pool. The wastewater passes through the XRipper unhindered while the disruptive matter in the shaft is held back. The XRipper was switched on by means of ultrasonic level monitoring and reliably macerated all the disruptive matter to a manageable size. This reduced maintenance work for the employees; to date (February 2017), there has been no further trouble. The municipality adopted the macerator after the end of the 3-month trial period.