XRipper®: Trouble-free wastewater transport despite hygiene articles

Case Study - Lautertal municipality

Wastewater

Problem

Clogging of pumps by modern hygiene articles

Solution

Retrofitting of the XRipper XRC136-560QD

The customer

Lautertal is a municipality in the Vogelsberg area. It was formed in 1971 by the merging of 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 waste water in six smaller treatment plants. The largest of these 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 waste water flows into an open pit. The incoming water passes from here to a buffer tank, from which it is then pumped via centrifugal pumps to the sewage treatment plant 2 km away. The pumping system itself is installed in an underground pit. It consist 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 conveyance of the water. A 5.5 kW motor is installed, allowing a performance of around 40-45 m³/h per each of the centrifugal pumps.

The problem

This system has proven itself for years. However, the increasing use of new hygiene items (wet wipes) and grooming products (microcloths), have 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 where they become 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, during the period from January to May 2016, 32 maintenance jobs were necessary to deal with clogs caused not just by wet wipes and cleaning cloths, but also by feminine hygiene products and even underwear sometimes.

Under normal conditions Armin Wolf (worker of Lautertal municipality), will be needing around an hour to deal with the problem. If much disruptive matter (in extreme cases) was flushed into the pumping station the centrifugal pumps would clog again immediately after the maintenance job. Then he would need to be clearing 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 waste water 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 and to date (February 2017) there has been no further trouble. The macerator was adopted by the municipality after the end of the 3-month trial period.

Vogelsang XRipper

Advantages of the XRipper®

- Reliable shredding of disruptive matter in wastewater
- Sewer Integration Kit (SIK) for easy installation in the pit
- Maintenance and servicing on-site by own personnel

Benefits for the user

- Wastewater pumps no longer clog
- Unplanned maintenance jobs are no longer necessary

Mentioned Vogelsang product

XRipper: Twin-shaft grinder for sewer and wastewater treatment plants

Mentioned Vogelsang product

XRipper: The wastewater grinder for wastewater applications

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