STEBATEC®
Measure - Control - Regulate

Rügen water and waste water supply municipal association

Exact measurement despite wide inflow fluctuation

- Measurement channel calibrated in the hydraulic lab for high precision
- Tested and certified measurement section
- Replication of the full flow profile

One of the two calibrated measurement channels are being installed for inflow measurement in the shaft constructed for that purpose. The other one (bottom right) is already in place.

Starting situation

The Rügen water and waste water supply municipal association (ZWAR) is responsible for the waste water management throughout the Baltic Sea island of Rügen, which turns into a tourist stronghold each summer. During that season, the waste water flow is many times the normal flow so that extreme fluctuations must be managed. Therefore, the technical manager of the Association, Karsten Kröger, and the manager of the Bergen waste water treatment plants, Oliver Heidrich, were looking for an exact and reliable inflow metering system to control waste water treatment processes more reliably despite the high fluctuations. The search for a solution was complicated by very complex hydraulic conditions downstream a screen building, the extensive use of flocculation and precipitation chemicals within the measurement range as well as substantial sand deposits in the pipeline system.

Requirement

- Accurate flow measurement at all the times
- Exact measurement up to 600 l/s
- Certified measurement sections tested in the STEBATEC hydraulic lab

Implementation

The Association ZWAR and STEBATEC GmbH took on the case together and started looking for the best possible solution to ensure the exact and stable measurement of water inflows of about 10 l/s during night-time and peaks of up to 600 l/s. They decided for a partly filled stationary flow measurement system with a calibrated measurement channel with ultrasonic measurement of the transit time difference. The measurements are made on ten different levels to ensure that the real flow profile was replicated exactly. Before the two measurement channels were delivered to ZWAR, they were subjected to extensive testing in the STEBATEC hydraulic laboratory, and certified. Since the system started service, measuring data has constantly been sent to the Association's SCADA system. Optionally, external contractors can be linked up with the measurement system by GPRS at any time. The measurement transducers are installed in a neighbouring building; therefore, no extra control cabinets were needed.

The measurement sections not only supply very exact data, they also have two maintenance openings for ease of access for inspection and maintenance. The shafts in which the measurement sections are installed and the shaft cover were built by local contractors according to STEBATEC GmbH specifications.

The sewage treatment plant in Bergen on the island of Rügen is one of the plants managed by the local Association.

Rügen Island experiences an influx of tourists every summer who produce large volumes of waste water.

Captions

The measurement sections were subjected to extensive tests in the STEBATEC hydraulic lab.

View of the hydraulic lab in which the measurement channels were also calibrated.

The measurement transducers transfer data to the SCADA system and optionally via GPRS to an external maintenance contractor.

Large and comfortably placed maintenance openings ensure free access for inspection and maintenance.

The manager of the Bergen sewage treatment plant, Oliver Heidrich, is seen documenting work at the shaft constructed for the measurement sections.

The finished shaft with the cover and the access openings for maintenance and inspection.