APPLICATION REPORT

Water & wastewater

Flow measurement for the drinking water supply in the City of Emden

- Measuring device with drinking water approvals
- Polyolefin measuring tube liner with proven hygienic suitability in accordance with the UBA [Federal Environment Agency] and microbial suitability in accordance with DVGW W270

1. Background

The Emden municipal energy supply company operates a waterworks in the town of Tergast to supply the City of Emden with drinking water. The groundwater obtained is of good quality, however it must be treated as it contains significant amounts of soluble iron and manganese. The treated water goes unpressurised into a 2000 m³ clean water tank. The clean water pumps convey the drinking water via two redundant, almost 12 km long transport pipes to the pressure and tank station in Emden. The tank station performs two tasks simultaneously; it evens out peaks in consumption and equalises delivery in the transport pipelines from Tergast to Emden. This way of operating saves both resources and costs.

2. Measurement requirements

The clean water pumps in the Tergast waterworks convey the drinking water through two transport pipelines, DN 500 and DN 700, to Emden. To measure the delivered volume of drinking water in the transport pipelines, the Emden municipal energy supply company was looking for a suitable flow measurement system. The flowmeters provided must be approved for use with drinking water.

KROHNE

3. KROHNE solution

Two OPTIFLUX 2300 electromagnetic flowmeters with polyolefin (PO) lined measuring tubes were used for this application. They feature drinking water approvals in accordance with the UBA liner guideline as well as DVGW W270 approval. This two-part drinking water approval corresponds to the requirements for materials that come into contact with drinking water. It is divided into hygienic and microbial tests. The hygienic test in accordance with UBA guidelines contains the hygienic assessment of organic liners in contact with drinking water and ensures that the material used does not transfer to the drinking water any substance that presents a health hazard.

The microbial test is the test in accordance with DVGW W270 `Protection against biological contamination through the increase in microorganisms on non-metallic materials`. Whereas in the past hard rubber was frequently used as a liner for flowmeters, it is now increasingly common to use the further developed polyolefins. Polyolefins are sturdy, flexible plastics featuring good chemical resistance. Their surface is smooth and non-porous, making it less susceptible to biological growth.

OPTIFLUX 2300 C with PO-lined measuring tube prior to installation

Measuring device in operation

4. Customer benefits

The customer was extremely satisfied with the measuring solution. The devices used meet all the prerequisites as they feature hygienic approval in accordance with the UBA as well as microbial approval in accordance with DVGW W270.

5. Product used

OPTIFLUX 2300 C

- Electromagnetic flowmeter
- PO-lined measuring tube
- Drinking water approvals in accordance with UBA, DVGW W270 (Germany), ACS (France) and WRAS (United Kingdom)
- Any mounting position, minimum requirements for installation
- Bi-directional flow metering
- Long-term reliability and no maintenance
- No moving parts, no wear and no obstruction in the flow

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