APPLICATION REPORT

Water & Wastewater

Measurement solution for monitoring water abstraction wells

- Energy self-sufficient flow and pressure measurement for long-term well monitoring
- Combined solution for efficient groundwater management

1. Background

The water utility company Leipziger Wasserwerke operates four large water plants in Germany that supply about 75 percent of the drinking water for the city of Leipzig and its surrounding area. Two of these water plants mainly abstract raw water from the bank filtrate of an adjacent river.

2. Measurement requirements

Depending on their location and integration into the hydrogeological environment, the wells are subject to an ageing process (e.g. iron ochre sedimentation). In order to anticipate this ageing process, the development of specific well yield in operation is monitored over time. Monitoring is an important control tool when planning ahead for well rehabilitation.

Given the technical conditions in the water catchment galleries, only a solution that could reliably measure without a direct power supply and could be used in confined spaces was worth considering.

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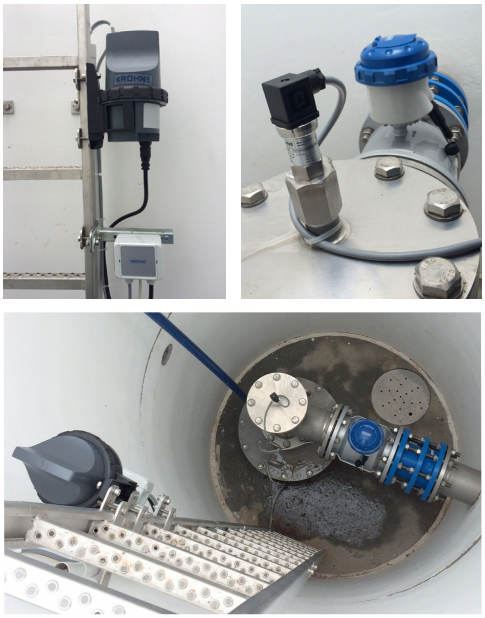
3. KROHNE solution

KROHNE recommended the use of a combined solution made up of the WATERFLUX 3070 C water meter, the OPTIBAR LC 1010 C submersible level probe, the OPTIBAR P 1010 C pressure transmitter and the GSM/GPRS data logger KGA 42.
The battery-powered WATERFLUX 3070 water meter is perfectly designed to measure in confined well shafts without inlet and outlet run. As the wells may be flooded, the IP68 rated version of the water meter has been supplied. It continuously measures the flow volume and transmits the data via its pulse output, either once every hour or once every minute. Configuration is flexible. When limit values (MIN/MAX) are exceeded, the water meter emits an alarm which, with the help of the data logger KGA 42, is transmitted to the operator's mobile device and into the control system.
In addition, the OPTIBAR P 1010 pressure transmitter measures the negative pressure for the water delivery. The OPTIBAR LC 1010 submersible level probe uses a gauge pipe to monitor the groundwater level. This data is also transmitted to the KGA 42. The GPRS module features two analogue inputs which are used to supply the 2-wire pressure sensors and guarantee transmission.



Top left: Data transmission with KGA 42;
Top right: OPTIBAR P 1010 C and WATERFLUX 3070 C;

4. Customer benefits

The customer is able to efficiently monitor the wells on an ongoing basis with the help of this solution combining water meters and pressure sensors. They are now able to better predict the effects of ageing than in the past, making it easier to plan for well rehabilitation in a timely manner.
The KROHNE solution satisfies the increasing customer demand for big data. Water withdrawal is more reliably secured and the entire system can be operated as cost efficiently as possible. As a full-service provider for the water and wastewater industry, KROHNE was able to supply the entire solution.

5. Products used

WATERFLUX 3070 C
- Battery-powered electromagnetic water meter for drinking water applications
- Installation without inlet and outlet runs

OPTIBAR P 1010
- Ultra-compact pressure transmitter for absolute and relative pressure measurements

OPTIBAR LC 1010
- Submersible level probe with ceramic measuring cell

KGA 42
- Data logger and GSM antenna for remote transmission of readings
- For installation sites with no power supply (Inputs: 4 digital, 2 analogue)

Contact
Would you like further information about these or other applications?
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