Results of Online-Measurements TS Klingenberg 2019, Dresden

Challenge

The Regional Dam Administration of the Free State of Saxony is responsible for the regular water quality monitoring of the Klingenberg dam.

Solution

OTT HydroMet provided the HYDROLAB HL7 water quality probe and the data logger for the measuring stations to support the tests at the dam.

Benefits

The values of the online measurement correlated well with the values from the laboratory. Thanks to a remote connection, the values are available in the office in real time.

“The values of the probe corresponded well with the values from the lab and we can use the year 2019 as reference without microbiological problems.”

Dr. Martin Wagner, Head of Department for Water quality of the Water Technology Center in Dresden

Used technology

HYDROLAB HL7

Multiparameter probe

The HYDROLAB HL7 can be equipped with a variety of sensors and is designed for long-term monitoring

OTT netDL

Data logger

IP-capable data loggers with various options for remote data transmission

OTT HydroMet

Research Project TRUST

Climate change is exacerbating water shortages, especially in arid regions. At the same time, the demand for water is increasing worldwide - as drinking water, irrigation water for agriculture and process water for industry.

In order to meet this global challenge, experts from various disciplines in this field all over the world joined forces and launched the TRUST project, which was active from May 2017 until April 2020.

During this time, the TRUST team developed holistic planning tools and innovative integrated water supply and wastewater disposal concepts for sustainable water supply. The generation of clean drinking water always had priority.

The project was funded within the scope of the "GRoW" (Global Resource Water) in the framework program "Research for Sustainable Development" (FONA3) funded by the German Federal Ministry of Education and Research (BMBF).

Responsible for this was the project management agency Karlsruhe Water Technology and Waste Management (PTKA-WTE).

The Center for Interdisciplinary Risk and Innovation Research (ZIRIUS) at the University of Stuttgart was responsible for coordination.

Project

The Klingenberg dam is located in the Free State of Saxony and serves the drinking water supply of Dresden and large parts of the former Weißeritzkreis area. Besides, it contributes to flood protection and, to a small extent, to energy generation.

Comparative measurements - water quality probe and lab

The sensors were installed at three sampling points (E1, E3, E6) in March 2019, using a multi-channel unit (magnetic shut-off valves). This made it possible to monitor three water horizons (surface, middle and bottom of the water body) at the dam with one probe. The monitoring of the horizons was carried out every hour.

The operation of the HYDROLAB H7 multiparamter probe provided by OTT HydroMet was carried out by using it in a flow cell. This is an open vessel with inlet and outlet.

sich um ein offenes Gefäß mit Zu- und Ablauf. As part of regular sampling in an interval between two and up to four weeks, both chemical and microbiological water quality parameters were determined in the laboratory. These measurements also served to verify the measured values recorded by the multiparameter probe:

- Oxygen concentration
- Oxygen saturation
- Turbidity
- Electrical conductivity
- Chlorophyll a
- Temperature

@ Further information about TRUST: http://trust-grow.de/

Summary

The multiparameter probe was used to monitor the raw water quality at three different withdrawal horizons of the Klingenberg drinking water reservoir over a period of one year. The measured values corresponded very well with the reference values of the laboratory. It is to be noted that the operation of the probe was absolutely low-maintenance over the entire period.

Test arrangement

Measurement Results

- Overall very good correspondence between laboratory and online measured values
- Slightly overestimated chlorophyll concentration by OTT probe, yet trends are correctly represented
- OTT probe proved stable and low maintenance operation
- No growth of coliform bacteria – yet the year 2019 can be used as "blank value" (comparison year without microbiological problems)

Insights for Experts

For more information contact:

OTT HydroMet Germany
Ludwigstrasse 16
87437 Kempten
T +49 831 5617 0
euinfo@otthydromet.com
www.ott.com