Water Reservoir Schönforst refurbished by HUBER

Since public water supply began in the past century, the water reservoir Schönforst has provided indispensable services for potable water supply of the City of Aachen. Start-up was in 1880 together with the first water works in Aachen, the "Eicher Stollen" and a pipework system of approx. 57 km length. Due to the altitude the water could be delivered from the "Eicher Stollen" to the Schönforst water reservoir by gravity without the need for pumps, and from there into the supply area, the City of Aachen.

After almost twelve years the time had come for a complete overhaul, the main goal of which was: preservation of water quality, especially in respect of hygienic aspects, and protection against external influences.

Also current technical standards required some alterations to bring the reservoir back to state-of-the-art level.

In collaboration with Huber Technology, a solution for optimal flow conditions in the rectangular tank was elaborated under the above mentioned aspects.

Water inflow into the new tank is via a special pipe construction throughout the whole tank width. This pipe construction has borings of different sizes and arrangement through which the water flows both vertically and horizontally into the tank.

The inlet construction is positioned opposite to the discharge construction to create a stable flow which is active throughout the whole width. All the potable water in the tank is in motion, stratum or dead zone formation is prevented.

To protect the potable water also against external influences, a air filter plant type 661 was installed. Aeration and dearation is by means of a triple-stage aeration plant with natural air exchange, loadable from both sides. It is a prerequisite that air exchange will exclusively take place via the provided aeration and dearation plant. This means the water chamber has to be separated from the control building and also any other air openings to the water chamber have to be reliably closed.
Air suction is from the direct ambiency. Access to the aeration and deaeration plant which is installed in the control building is easy. Measures were also taken to discharge condensed water. Layout was in compliance with

- DVGW working sheet W 311
- DVGW sheet W 312
- DVGW sheet W 621

The external air is sucked respectively the displaced air blown through an induction chimney. The stable construction protects against wanton destruction and vandalism, the installed insect filter serves as a first filter stage.
The air filter unit is fitted into the air line. There is a fine filter inside the unit as a second filter stage with a separation degree of 96.4%. The fine filter protects the third filter stage and is a condensate trap in case of high loads of aerosol and humidity in the air. The third filter stage consists in a floating material filter with a separation of 99.997% for optimum clarification of the supply air in this air filter unit. The material of all filters is a bactericidal material which prevents unhygienic influence on the potable water even with high loads of humidity.

The jointless tank has only few pores and smooth inner surfaces. This combined with the directed flow and filtering of supply air guarantees a bacteriologically and hygienically optimal as well as an economical and environmentally compatible form of tank operation which complies with the state-of-the-art technology.

by Stefan Wittl

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Adresse / address: HUBER SE · Industriepark Erasbach A1 · 92334 Berching · Germany · Telefon / phone: + 49 - 84 62 - 201 - 0 · Fax / fax: + 49 - 84 62 - 201 - 810
e-mail: info@huber.de · Internet: http://www.huber.de