Innovations for clean water

ATB

Practical Report
Beverage industries

The healing water of St. Leonhard

After recovering from his serious illness a clever Bavarian declared: "This water has cured me" and without hesitation purchased the source – with St. Leonhard's water...

Although further cases of a successful cure are not known there is,however, enormous demand which ensures additional jobs as well as an expansion of the production capacity...

Report: Murat Ceylan
Photos: Uwe S. Meschede

The small chapel of St. Leonhard and the associated spring almost vanish between the towers of green bottle crates in the middle of a small woods near the Bavarian s Church of St. Stefan; due to the increasing demand and to the ever higher towers of crates the capacity here, however, has for some time already been no longer sufficient. Still the new production site with many times the production capacity is already just about to be occupied - in the vicinity of the old operation, to the chapel and, naturally to the source of the holy water.

Here, in future, both administration and the complete production are accommodated in a single building: the filling plant, the automatic cleaning facility for the glass bottles and, naturally, the treatment of the wastewater produced - using a multi-stage AQUAMAX® XL wastewater treatment plant.

We were there as the plant was installed, tested and taken into service...

Practically ready for occupation: the new administration and production building of the St. Leonhard's spring

The processing of the water at the foot of the Baverian Alps has, since time immemorial, been a part of the everyday handicraft of Leonhardsquelle, but the treatment of the wastewater... – that was new territory for the technicians!

As a result a competent partner was sought. The execution by the construction firm thus went to its neighbour the bwu Unterholzner GmbH; it was well-known that this firm, as marketing partner of the ATB, could help further with the AQUAMAX®.
Within the framework of the wastewater engineering project development and the process of attaining authorisation under water law the local engineer office of Ingenieurebüro Stief was then tasked to find a solution to the wastewater problem. Initially, within the first phase of the project, a stocktaking had to be carried out. Ultimately, there are three different wastewater flows produced in operations over the whole year which have to be handled by the wastewater treatment plant which had to be conceived:

- The faecal wastewater of employees in the building (administration) and the wastewater from the social buildings of the operation - altogether 8 PT.
- 3 m³ wastewater per day from the back-washing of the deferrisation facility: The spring water has a high iron content and has to be fed through an ion exchanger before processing: The iron flakes produced are removed by back-washing the ion exchanger and are trapped in a trough-shaped settling tank. These deposited iron residues are then disposed of separately.
- The main wastewater flow is provided by the bottle and crate washing plant. With this ca 144 m³ of water are yielded per day, the peak value is 6 m³ per hour. The wastewater produced from this has a very strongly varying pH value and must, beforehand, be brought into a moderate zone in the course of buffering.

Both the Celts as well as the Romans already used the positive effects of the water from St. Leonhard's spring. Since the early part of the 18th century it has been the site for pilgrimages to venerate St. Leonhard. The water is characterised through numerous vital trace elements and by an ideal combination of minerals.

The capacity of the plant was dimensioned according to the pollutant loads produced and finally set at 180 PT. An AQUAMAX® XL-2 180 was decided upon. Here one is not concerned with a conventional AQUAMAX® XL plant. Why not? For example the main wastewater flow is transferred by means of feeding pumps into the two SBR tanks. Each of these tanks holds ca. 40 m³.

The surplus sludge is pumped into a separate sludge store and there thickened. The treated water is then discharged into a receiving water. Here there were strict conditions on the part of the authorities with regard to the discharge. The quantities of wastewater are reduced to a maximum value of 2 l/s via a throttle structure.
The operational safety of the complete plant was and is one of the most important aspects with the conception of the plant. In order to meet these demands some additional components, which were far above the normal standard scope of delivery of the AQUAMAX® XL plant had, naturally, to be integrated into the plant.

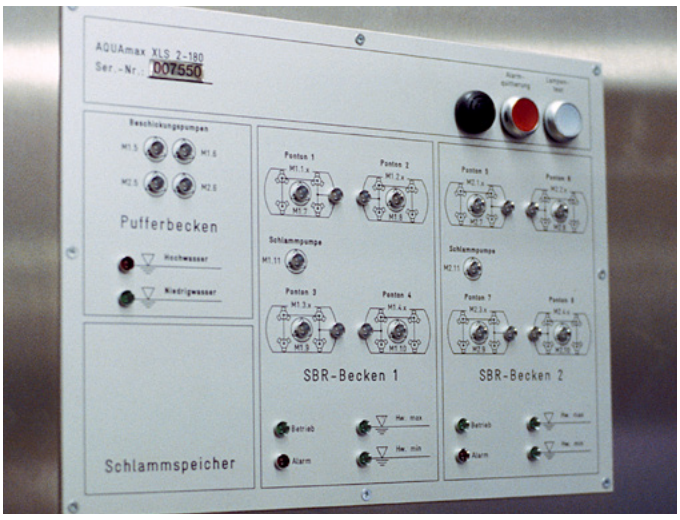
For one, an online pH metering system was integrated into the buffer tank in order to regulate the neutralisation; precisely because the pH value has a very great influence with regards to operational safety and the stability of the biomass.

This pH measurement and naturally the additional agitators had still to be integrated into the control box In addition the operator required a visualisation of the whole plant in order better to be able to observe the complete process of the wastewater treatment. This was realised by software specially written for this application case.

The construction of the wastewater treatment plant was started parallel to the move of the operation.

Commissioning finally took place in November 2003.

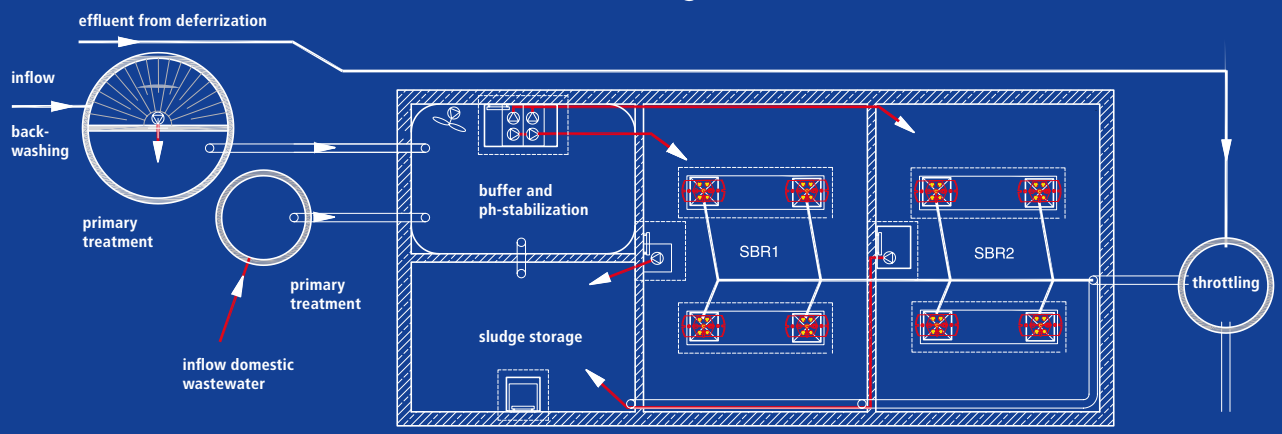
The SBR tanks, the sludge store and the buffer tank (below) were built directly next to each other in front of the new St. Leonhardsquelle production and administration building of.



Within the control box there is also a visualisation of the complete plant for the observation of the wastewater treatment.

The St. Leonhard's spring project at a glance:

Owner	St. Leonhardsquelle GmbH
Project management	Ingenieurbüro Stief
Implementation	Wastewater treatment plant technology ATB GmbH
	Installation bwu Unterholzner GmbH
	Electrical plant Otto Zach Elektroanlagenbau
Pecliarities	pH stabilisation in upstream buffer tank; visualisation of the process in the control box
Cost of plant technology	Ca. 40.000,- €
Commissioning	November 2003
Overflow values	COD < 150 mg/l BOD_5 < 40 mg/l



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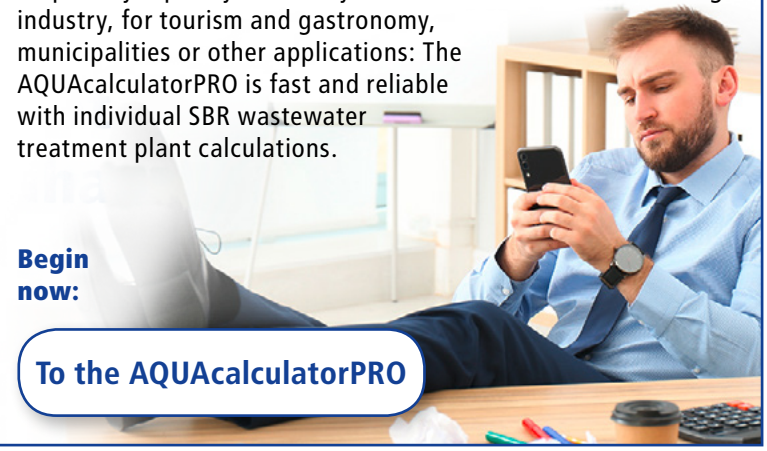

Begin now:

To the AQUAcalculatorPRO

ATB WATER GmbH
Südstraße 2
D-32457 Porta Westfalica
Telefon: +49 5731 30230-100
Telefax: +49 5731 30230-30
E-Mail: info@atbwater.com
Website: www.atbwater.com

facebook.com/ATBWATER
ATB Water GmbH
twitter.com/atbwater
linkedin.com/company/atbwater
youtube.com/atbwater

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