

## Efficient filtration required for the nuclear power plant Gösgen

The treatment of process water demands a lot of the filtration process. The nuclear power plant Gösgen, located between the Swiss cities Aarau and Olten, takes its cooling water from the river Aare. The water therefore shows high turbidity loads during storm events or during the snowmelt period.

The majority of the extracted river water is used as cooling water while a small part is passed to an ion exchanger to obtain service water. Lime is added for decarbonisation to maintain the high efficiency of the susceptible ion exchanger and minimise regeneration intervals. The solids produced in this process settle in the following sedimentation tank but about 10 – 20 mg/l solids (finest calcium carbonate) remain in the effluent. The ion exchangers are unable to cope with such high rates.

As the operators wanted to modernise their pressure sand filter they decided to carry out pilot tests with the HUBER CONTIFLOW® Sandfilter. During the continuous filtration process in the 2 m sand bed and at the same time discontinuous sand washing taking place even finest turbidities remain in the sand bed, with even an increased separation effect. Sand washing starts automatically when a defined degree of contamination has been detected by a

pressure probe. In addition to the increased separation effect the wash water demand is reduced from about 7% to 2%. After six weeks the pilot tests finished with convincing results. The filtrate quality achieved ranged from 0 – 0.6 mg/l solids.

Two HUBER CONTIFLOW® Sandfilter CFSF 50 C units were installed in autumn 2009; start-up took place in spring 2010 after a scheduled inspection.

This installation does not stand out of the number of HUBER Sandfilter installations due to its size but excels with its high efficiency in separating finest inorganic material of < 1 ppm filterable solids – a clear proof of the advantage of deep bed filtration over two-dimensional disc filters.

High filtration efficiency with moderate investment and operating costs as well as high manufacturing quality and professional cooperation during the pilot tests were the facts that convinced the nuclear power plant operators.

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*Aerial photo of the nuclear power plant Gösgen*



*Crystal-clear effluent from the sandfilter*