HYDROTECH Application News
2001-09-13

Sdr. Vissing WWTP

Effluent polishing at a small municipal waste water treatment plant

The biological step concists of a small oxidation ditch, A-channel type, with one tank functioning both as aeration tank and settling tank. Waste water is received from the small village nearby with approximately 300 inhabitants.

The plant has been operating at the standards valid in the 1970`s, but is now subject to more strict regulations as the receiving water is one of the main fresh water areas in the country. A Hydrotech drumfilter has therefore been installed for effluent polishing.

Picture: Sdr Vissing wwtp in Denmark.

Incoming water flow is highly fluctuating, as the sewer system has no separation of stormwater and waste water. Influent variation is in the range of 50-500 m³/day. When the flow capacity of the biological system is exceeded, surplus influent water is led to a separate outlet after primary treatment consisting of screening and sedimentation. The pump controlling inlet flow to biology has a maximum of 50 l/s.

Discharge of effluent from the oxidation ditch takes place intermittently using a special weir system. Down stream loading of the filter is consequently very high in periods and at times very low.

Picture: Hydrotech Drumfilter HDF2007-1L, 18 µm filter opening, maximum flow 50 l/s.

New type of Drumfilter

A new version of the well known Hydrotech drumfilter was installed, model HDF2007-1L. The filter was delivered as a complete unit in a tank. The drive has been changed to a belt drive, replacing front bearings as well. A patented moving spray bar ensures even better cleaning of the cloth. In case of overloading of the filter, an internal by-pass leads the water around the filter, protecting rinse water nozzles from becoming blocked by suspended material.

20 % savings

Rinse water consumption has been reduced from 2,1 l/s to 1,8 l/s (at continous operation) and energy consumption has been reduced from 3,0 kW to 2,2 kW as installed effect in rinse water pumps.

Results

The main consideration was phosphorous (P) which had to be lowered to comply with the new standards put forward for the receiving waters. Before installation of the filter, effluent concentrations were between 1,0 and 2,0 mg/l total P. After installation of the Hydrotech filter for effluent polishing the concentration of phosporous in the outlet has been reduced to below the required value of 0,5 mg/l.

Picture: Phosphates are precipitated using iron-cloride and it can be seen that the filter cloth is becoming red in colour.

The filter has been in operation since April, 2000 and until now a standard high pressure cleaning of the cloth has been sufficient.
If precipitated iron leads to blocking of the filter, the cloth can easily be cleaned by washing with dilute hydrocloric acid without using any detergents.