

# Hydrotech Primary Filtration at IVAR SNJ

## Filtration | Case Study

### *Central Wastewater Treatment Plant of Nord Jæren*

#### The Client

The Central Wastewater Treatment Plant of Nord Jæren (SNJ) is located in Stavanger, a city on the south-west coast of Norway.



#### Key Figures

- Design capacity
  - 500,000 population equivalent
  - 64 MGD
  - 300 mg/L TSS
- Start up – April 2017
- Primary treatment plant
- 20 units of model HDF2010-2F
- Upstream pretreatment uses 8mm perforated screens, grit & FOG removal
- The filters are followed by a BioP process based on an A/O configuration

#### The Benefits

- Compact footprint
- Reduced aeration volume and demand
- Increased energy recovery in digestion

#### The Client's Needs

SNJ is located inside caverns, therefore a space-efficient solution for primary solids removal is necessary. The Hydrotech filter system fits within a very compact footprint and was selected as the ideal solution to minimize the installation cost. The filters provide an efficient reduction of organic load to the biological stage without using any chemicals, require little maintenance and offer a high degree of operational flexibility. Collection system first flush conditions were included in the design basis since feed channels to the plant provide a very large buffer storage, allowing for longer periods at increased flow and maintaining a high feed concentration.

#### The Solution

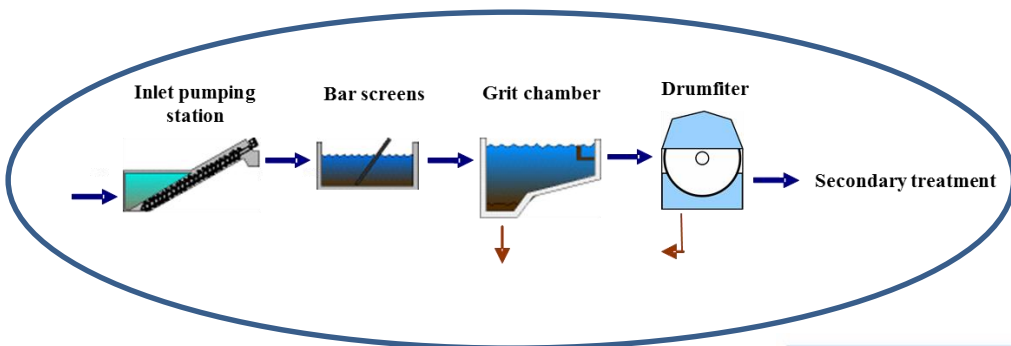
Hydrotech Drumfilters were the ideal choice for the client's challenge, with 20 units of model HDF2010-2F installed to meet the peak loading conditions. The installation requires very limited space, with the filters configured in two main rows that are fed by a common channel in order to optimally use the cavern's width. The units are automatically taken in or out of operation according to inlet loading in order to optimize the system operation and allow for operational flexibility.



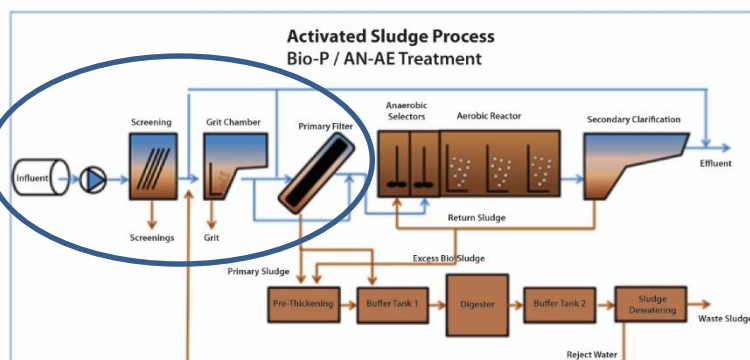
## Process Description

Treatment of wastewater at SNJ takes place in stages. First, the wastewater is pretreated by screens followed by grit and sand traps. Next, the Hydrotech Drumfilters provide primary solids removal. Wastewater flows from the filters to the biological treatment system to provide BOD and phosphorus removal. Finally, the wastewater is polished by sedimentation.

The Hydrotech Drumfilters remove particulate organic material ahead of the biological stage, thereby reducing loading and aeration demand. The filtered sludge is thickened along with the biological sludge and sent to the digesters for energy recovery.

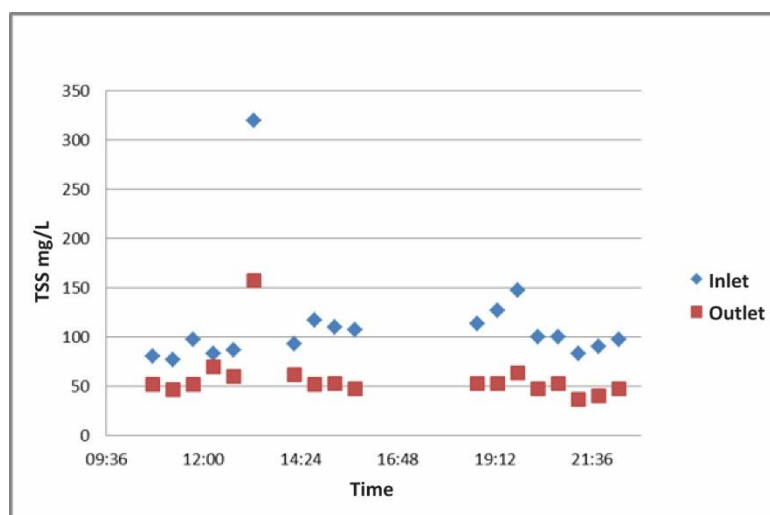


The Hydrotech filters provide a very efficient TSS removal while maintaining a high throughput. There is no need for chemical addition (coagulant or polymer) prior to the filters in order to reach the targeted TSS removal efficiency. This reduces operating costs and provides an even more space efficient installation.



## Results

A pilot study was conducted prior to the full-scale project installation in order to confirm the removal capability of the Hydrotech filters for this wastewater. The TSS removal efficiency was found to be >45% throughout the pilot trial and averaged greater than 50% for inlet TSS concentrations above 100 mg/l. The results were obtained without any chemical addition prior to the filter system. The plant is scheduled to be started in April 2017.



### Kruger

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