Management of hospital wastewater in Denmark

Denmark has a unique authority regulation of hospital wastewater. Hospitals are characterized as industries discharging hazardous pharmaceuticals and pathogens and are therefore regulated as such. The Danish municipalities regulate the hospitals, and a municipal guideline specifies how the hospitals are to be prioritized and regulated. The municipalities use the guideline to rate the hospitals from small to large point sources. Only the large point sources are facing requirements for wastewater treatment. The map below shows the larger hospitals under construction and renovation in Denmark.

Full scale advanced treatment since 2014

Advanced treatment technology

A full-scale advanced treatment plant has been in operation since 2014 at Herlev Hospital, a 900-bed hospital situated in Copenhagen. The treatment plant treats all wastewater from the hospital. The hospital is under expansion from 170,000 m³/y today to 200,000 m³/y in 2020. The process train is illustrated below. The Herlev Hospital plant is viewed as Best Available Technique for treatment of hospital wastewater by Danish local authorities.

Costs

Investment cost for a similar treatment plant is 4 million EUR. Operation and maintenance costs are 1.3 EUR/m³. The pay-back period can be roughly calculated to 10-13 years based on the savings of the local sewage tax (3 EUR/m³).

Next steps for treatment plant implementation

Aalborg University Hospital
- Beds: 580 beds
- Region: The North Denmark Region
- Time schedule: 2019
- Water area: Marine area (The Limfjord)

New Odense University Hospital
- Beds: 700 beds
- Region: The South Denmark Region
- Time schedule: 2020
- Water area: “Health lakes” and Local stream (Odense Stream)

New Herlev Hospital
- Beds: Expansion to 950 beds
- Region: The South Denmark Region
- Time schedule: Since 2014 (Expansion in 2019)
- Water area: Local stream (Kagså)

New Rigshospitalet
- Beds: Expansion to 1,300 beds
- Region: The Capital Region of Denmark
- Time schedule: 2023
- Water area: Local lake (Inner Cph lakes)