

# INDUSTRIAL NORDFJORD KJOTT, NORWAY

CMFF® technology

Project Name:	Nordfjord Kjott R.A.
Location:	Stryn, Norway
Type of Plant:	Industrial Meat Processing/Slaughterhouse
Technology Used:	Biowater CMFF® Biofilm system
Biomedia Used:	Biowater BWT-X®
Operational Since:	Summer 2011



## The Challenge

Located deep in the mountains of Stryn, the original plant consisted of an inlet pump station & Salsnes filter for pretreatment, fat removal and a Salsnes filter for post treatment. The plant also had 8 concrete tanks which were not in use. The municipality was faced with equivalent loading rates of 10,000 PE and the existing system was rated for 5,000 PE so it was either install pretreatment at Nordfjord Kjott to drop the load to 5,000 PE or upgrade the municipal WWTP.

## The Design

The Biowater CMFF® biological process was chosen. The new equipment/the upgrade involved installation of a primary Salsnes filter ahead of Equalization and FOG removal (Clarification/Skimming). Effluent from the Primary Clarification flows to two (2) CMFF® trains, each having two (2) stage aerobic reactors for oxidation of BOD and COD. Effluent from our CMFF® reactors flows to a secondary Salsnes filter for liquid-solids separation.

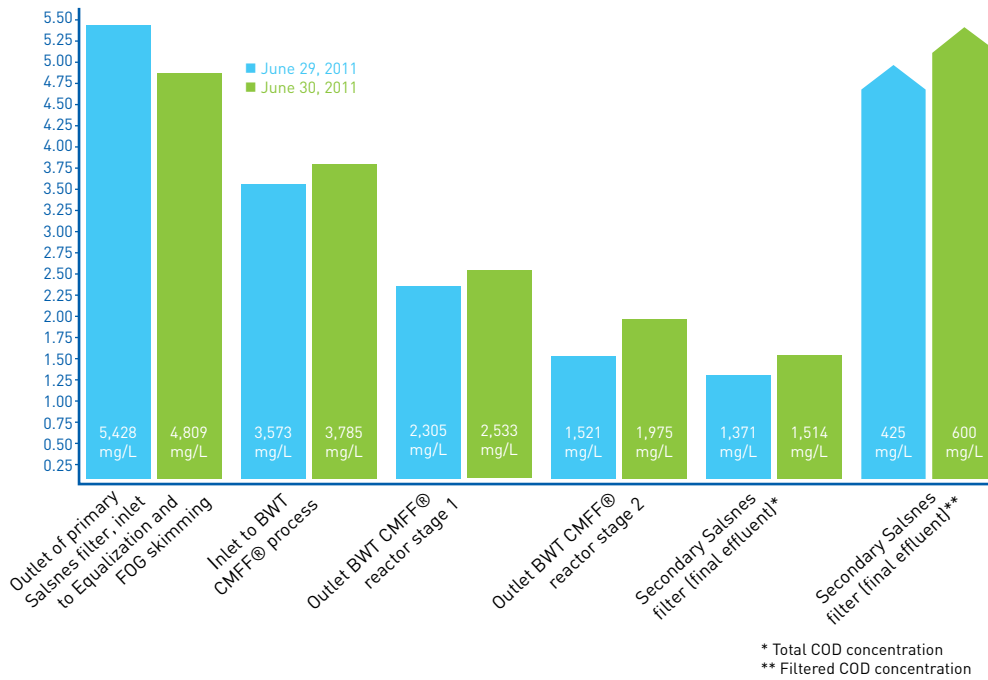
*"Our new sewage plant has become very effective, and we actually clean our effluent far more than the public authorities demand from us. However, being a cornerstone company in the community we feel comfortable in taking considerable responsibility for the local environment" explains technical manager Ottar Vinsrygg at Nordfjord Inc.*



The secondary Salsnes filter has been upgraded from 350 microns to 110 microns mesh size to provide tighter filtration. The results given below are from the 350 micron Salsnes filter. We expect the total COD concentrations will be much closer to filtered COD concentrations once the mesh is replaced. The system will effectively reduce COD concentrations of approximately 5,000 mg/L to final effluent approximately 500 mg/L



The BioWater CMFF® biological process is based on the MBBR (Moving Bed Bio Reactor) concept where moving plastic carriers with fixed biofilm remove organic and inorganic substances in the water. The proposed BioWater CMFF® design includes the Biowater biofilm carrier elements which are freely mixing around in the reactor and are specially designed for biofilm growth.



## Achievements

The Biowater system effectively reduces COD concentrations of approximately 5,000 mg/L to a final effluent of approximately 500 mg/L. The system is low maintenance and continues to run perfectly.

PARAMETER	DESIGN LOAD		EFFLUENT REQUIREMENTS
	US	INTL.	
FLOW	0,15 MG/D	24 m <sup>3</sup> /h / 576 m <sup>3</sup> /d	
BOD <sub>5</sub>	2,090 lbs/d	1650mg/l / 950 kg/d	80% or < 150 mg/l
TSS	2,534 lbs/d	1152 kg/d	
TEMPERATURE	64°F	18°C	

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*Biowater Technology is an innovative company with over forty years of experience in the Biological treatment field. Our focus is on saving energy and resource recovery, with water as our major resource.*