

MUNICIPAL

ELVEROM, NORWAY

CMFF® technology

Project Name:	Elverom RA
Location:	Nordre Land Kommune, Norway
Type of Plant:	Municipality - RBC Retrofit
Technology Used:	Biowater CMFF® Biofilm system
Biomedia Used:	Biowater BWT-X®
Operational Since:	July 2011



Biowater CMFF®



Before: RBC

The Challenge

Nordre Land Kommune, Elverom, is a small municipality located in Norway approximately 14 miles North of Oslo. Elverom had two Rotating Biological Contactors (RBC's) which did not work properly, were noisy and had odor issues. The required maintenance for the RBC's had become overwhelming. Elverom wanted to change over to an biofilm technology because of it's ease of operation and ability to retrofit into their existing tanks.

The Design

After researching various options the municipality decided on the Biowater CMFF® biological process. The Biowater CMFF® is based on the use of suspended biofilm carriers. The surface of the biofilm carriers provides a protective area for the biology to grow. Among the many benefits, the biofilms can handle extremely high loading conditions without any problems with clogging or shock.

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.



The new plant design included two reactors in series, an aeration system, biomedica, blower, sieves, mixers for flocculation and all piping.

In the summertime when the temperature is higher (from 150C to 200C) and the bacterial activity is increased we have made it possible to bypass Reactor 2 so that there will not be risk of Nitrification that may lead to floating sludge in the sedimentation.

In addition, since the walls of an RBC are sloping inwards, Biowater has a custom aeration system specially designed for use in RBC retrofits. The aeration system has two levels so it maintains even air distribution throughout the tank.

Achievements

By choosing the Biowater CMFF® Elverom removed an average of 87% COD and 97% BOD. After the biological treatment stage, chemical precipitation and Sedimentation was used and the effluent is discharged directly to the Livasselva, which is a fresh water lake. The odor is gone and the system is running smoothly with virtually no maintenance.



Biofilm carrier with solids.

PARAMETER	DESIGN LOAD		EFFLUENT REQUIREMENTS
	US	INTL.	
FLOW	63,360 gp/d	10 m ³ /h	
BOD ₅	39,7 lb/d	18 kg/d / 150 mg/l	< 30 mg/l
COD	79,4 lb/d	36 kg/d / 350 mg/l	
TEMPERATURE	41°F	5°C	

HEADQUARTERS

Biowater Technology AS
Rambergvn. 5, 3115 Tonsberg, Norway

Phone: +47 911 10 600
email: post@biowater.no

BIOWATER USA

Biowater Technology US LLC
2155 Diamond Hill Rd, Suite 2, Cumberland, RI 02864

Phone: +1 401-305-3622
email: sales@biowatertechnology.com

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.