



Sewage Treatment Plant Extention Contract for Pharmaceutical Residues Removal

**Mellifiq delivers the world's most
compact facility designated
for pharmaceutical residues
treatment**

MELLIFIQ

Sewage Treatment Plant, Sweden

In this project we're heading to the municipality of Storuman in the north of Sweden to execute an investment project dedicated to reduce pharmaceutical residues into the environment. The scope of the EPC contract involved providing a complete treatment solution, including constructing a fully equipped facility as a stand-alone extension to the existing treatment plant.

Facts

Location :	Storuman, Sweden
Application	Active Pharmaceutival Ingridiens (API) from municipal at sewage treatment plant
Industry:	Public utility
Purpose:	Pharmaceutical residues removal from primary treated wastewater

Solution:

Mellifiq delivery:	A complete and custom-built water treatment facility including civil works, front end engineering design, commissioning, process building erection and installation of WaterMaid Flexkarb-C adsorption system, Rena Tellusx1000 tailored turn-key ozone system, closed cooling system and ozone destructor.
Capacity:	80 m ³ /h
Perfomence:	>90% API-treatment
Facility specifications:	The walls, floor, and roof are fully insulated to ensure optimal performance in extreme weather conditions. To improve the working environment, the facility has been soundproofed to reduce external noise and minimize internal noise transmission between departments. Additionally, the roof is designed to withstand the heavy snow loads typical of the region.

The problem

The global use of pharmaceuticals has steadily increased over the past few decades and overall spending is expected to continue to grow in the coming years. All of this has resulted in increasing concentrations of pharmaceutical residues in our wastewater streams.

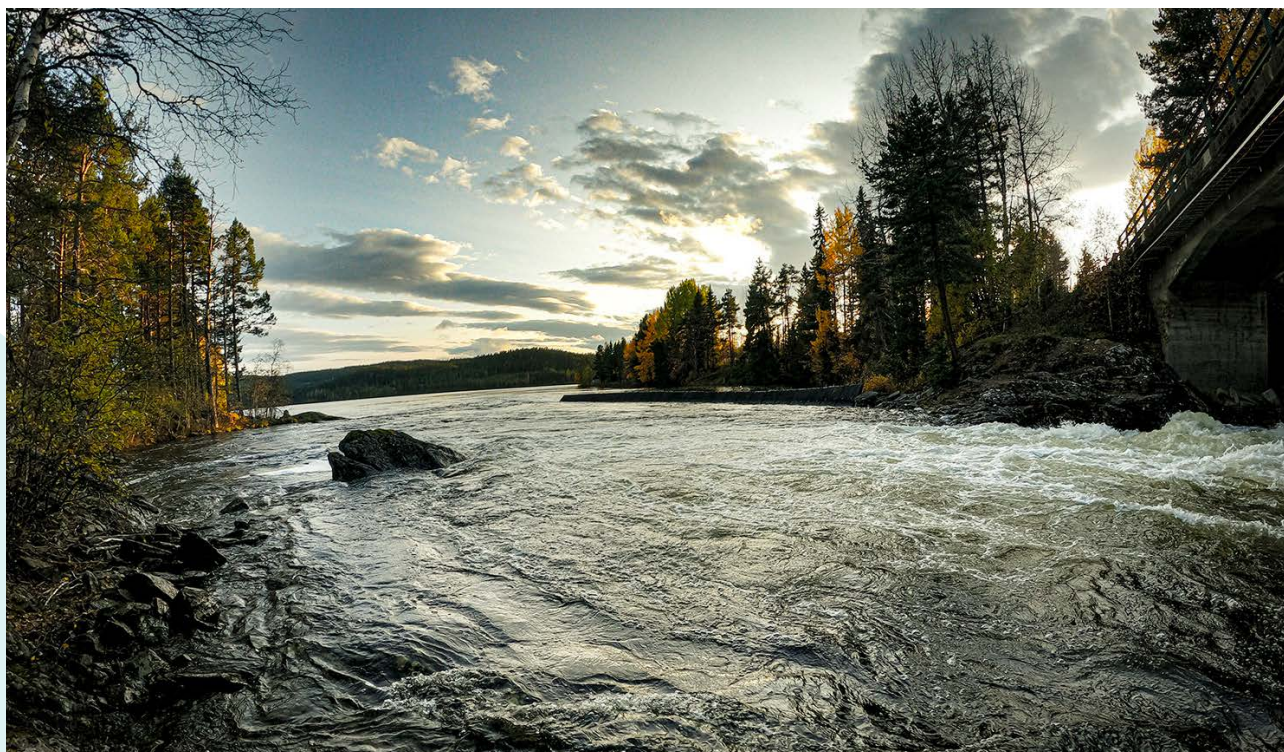
Pharmaceutical residues and other emerging substances pass through modern wastewater treatment plants and end up in the receiving waters and sludge, which causes significant consequences for ecosystems, wildlife, and human health.

The Water Framework Directive (WFD), along with the Environmental Quality Standards Directive and the Groundwater Directive, regulates the quality and ecological health of EU water resources, including inland, coastal, transitional, and groundwater.

These directives promote a unified approach across EU member states to protect water quality, reduce pollution, and conserve aquatic ecosystems.

In October 2022, the European Commission proposed revisions to the UWWTD (Urban Waste Water Treatment Directive) to include better treatment of micropollutants and pharmaceutical residues. The proposal includes 25 new substances to the priority list, including PFAS, commonly found in pharmaceuticals and consumer products, selected for their known risks to human health and ecosystems.

Mellifiq is proactively preparing for potential future EU legislation on wastewater treatment, aligning its plans with proposed directives aimed at sustainable environmental practices.



The solution

By integrating a quaternary treatment step to the sewage treatment plant, Mellifiq commissioned the world's first stand-alone facility dedicated solely to removing pharmaceutical residues.

The treatment facility includes a combination of several technical solutions, including three treatment steps: sand filtration using Water Maid FlexKarb system, turn-key ozone system including automation, gas preparation, ozone generation and dissolution system, followed by a final polishing adsorption step to eliminate any residual pollutants.

As a complete EPC contractor, Mellifiq customize the process facility with a modular design, enabling gradual capacity expansion to meet growing demand. This approach not only makes construction more cost-effective but also enhances sustainability.

At Mellifiq, we provide end-to-end services, managing every aspect from planning and construction to final installation.



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Customized RENA Tellus ozone system.



Water Maid FlexKarb filtration systems.

Evaluation

This pioneering initiative is part of an extensive plan to prepare for potential future EU legislation for wastewater treatment, leading the way towards more effective management of emerging pollutants.

As part of the pre-study, a mapping analysis of pharmaceutical substances at the sewage treatment plant was conducted. The results indicated a total drug concentration of 17,018 ng/L from the analyzed substances in the sample passing through the treatment plant, with an average flow of approximately 62 m³/h. Based on the analyzed substances, the wastewater treatment plant discharged about 9 kg of pharmaceuticals annually into the recipient. The highest concentrations at the inlet were of Paracetamol, Metoprolol, Cetirizine, and Losartan.

The facility must be designed to remove at least 80% of selected API-substances in accordance with the (UWWTD) Urban Wastewater Treatment Directive.

Our goal is set even higher, targeting a removal rate of 90-95%, significantly exceeding the wastewater treatment requirements. By integrating a quaternary treatment step, the facility ensures the removal of harmful substances that traditional methods cannot address, all while achieving this without relying on secondary biological treatment.

This initiative underscores Mellifiq's commitment to delivering innovative solutions that meet the growing demand for advanced wastewater treatment. It addresses the challenges posed by increasing global pharmaceutical consumption and aligns with the European Commission's revised Urban Waste Water Treatment Directive (UWWTD), which enforces stricter regulations on micropollutants.



A fully equipped water treatment facility designed to remove pharmaceutical residues.

About Mellifiq

Mellifiq is a multi-awarded environmental service company group, that has since the early nineties evolved into a world leading system and solution provider with multiple groundbreaking applications for industrial, municipal, and real estate clients. We supply cutting-edge technologies to manage the most sophisticated air, water, and energy challenges.

Mellifiq offers a complete range of air and water treatment technologies and solutions across multiple industries such as processing industry, energy sector, food and beverage, pharmaceutical, wastewater treatment and commercial real estate.

Mellifiq offers strong and renowned brands, such as Ozonotech, Nodora and Water Maid, and world-class engineering services combined an excellent track record of more than 40 years of innovation. We help our clients achieve the most efficient and sustainable solutions while creating the maximum value for their businesses.

With several business units across Europe, Mellifiq is headquartered in Stockholm where research and development, production, QA and certification all take place. Our unique technology and our extensive expertise have made us the Center of Excellence for the world's most complex projects, and a global player with installations on all six continents.

Everyday millions of people rely on our solutions for ventilation, disinfection, sanitation, and odor control. We are committed to raising the bar for the concept of clean and the industry standard for engineering, technical services and general contracting.

For additional information, visit our website at www.mellifiq.com

