

Trollhättan

A Mellifiq reference project



Mellifiq ozone solution provides insight into cleaner drinking water

**The future of drinking water
in Trollhättan is now a part of
Mellifiq's sustainability agenda**

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Trollhättan Energi, Stockholm, Sweden

Trollhättan Energi is a public utility company owned and operated by the city of Trollhättan. They supply the city with electricity, internet fiber infrastructure, and clean water among others. One of their latest projects involves building a new drinking water plant with 1500 m³ per hour to supply the city with potable water. Such a water treatment plant can take many years to design and construct.

Facts

Name:	Trollhättan Energi
Location:	Trollhättan, Sweden
Industry:	Municipal drinking water plant
Challenge:	Drinking water chemical and biological barrier system
Project value (USD):	100,000 - 1,000,000

Solution:

Mellifiq delivery:	Engineering design, consultation, automation, Ozonetech RENA Vivo A-series, commissioning Over 90% removal of API from wastewater
Performance:	Automated ozonation at variable output of 0.1-4 ppm dissolved ozone
Capacity:	16 m ³ /h
Dimensions HxWxD (cm):	180x120x80

The problem

The city of Trollhättan has been supplied with drinking water by the water treatment plant in neighboring Överby since 1962. After almost 60 years in operation, it is pushing past the expected 50 years of service. The machinery is outdated both in terms of lifecycle and ensuring current water standards.

The actual plant draws water from the Göta canal, which poses several risks to the production of clean and safe drinking water. It is a high-traffic waterway for both recreational and commercial boats. Furthermore, many local industrial facilities and wastewater treatment plants are discharging effluent into it. Due to these risks, the new drinking water plant will source water directly from Sweden's largest lake, Vänern, which has its own water composition and particular set of challenges.

To ensure reliability in the new plant, and a high-quality solution, a comprehensive pilot project was initiated by Trollhättan Energi. The pilot project includes all treatment steps that will comprise the treatment process in the new plant. This is a way to verify the process layout and dimensions of the full-scale systems.

The pilot project has two parts with a complete process line in small scale at Överby. A complementary study with reduced scope was performed at an existing water treatment plant in Kungälv, which already draws water from lake Vänern. The construction of a new plant will be initiated during 2023, with an expected completion in 2026.

The solution

Mellifiq was contacted to supply treatment systems for the pilot project, both in Överby and in Kungälv. The systems are used for meeting new demands on stricter microbial control and removal of micropollutants, such as pharmaceutical residues and pesticides. In recent studies, traces of several micropollutants such as pharmaceutical residues and PFOS and PFAS have been identified in Sweden's largest lakes. Common practices for this purpose are ozonation and active carbon filtration, a combination which was used at both sites.

Looking at the best available technologies, ozone was chosen as an extra microbial barrier. Several technology combinations are to be tested in order to find the right recipe to treat the unique water composition in Göta Älv.

An Ozonetech RENA Vivo ozone system was chosen to execute two separate pilot projects at two different extraction sites. Mellifiq was able to quickly dispatch two fully equipped systems for two years rental time.



Panorama over Trollhättan

Evaluation

As even the smallest model in the RENA series includes all necessary features for a fully functioning water ozonation process, the design can now be scaled to fit the full-scale installation.

The Mellifiq system can deliver Automated ozonation at variable output of 0.1-4 ppm dissolved ozone.

Överby

The overall scope of the pilot project is to mimic the entire drinking water production process at a small scale and a much lower flow of water. Treating the actual water ensures that the new plant will deliver high-quality drinking water according to today's standards when scaled up. By running the system during a 6-month period, important data on running cost and maintenance needs were attained.

The overall treatment process is configured as follows:

- Coagulation with subsequent sand filtration
- Ozonation followed by slow-filter
- Ultra-filtration
- Activated carbon filter as a polishing step
- Several chemical dosing points for pH adjustment

All products and components were assembled in containerized modules and placed right outside the current facility. This way, there was a limited intrusion on the day-to-day operations of the current plant.



Ozonotech installation

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

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