



ACLARUSTM
OZONE

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Town of Cobourg

MUNICIPAL WASTEWATER CASE STUDY



MUNICIPAL TOWN OF COBOURG

RECOGNIZED AS ONE OF CANADA'S BEST PLACES TO LIVE

The Town of Cobourg is a picturesque municipality nestled along the shores of Lake Ontario, a little more than an hour's drive east of Toronto. Founded in 1798, the town of 19,440 is a popular destination for tourists who can enjoy one of the most beautiful beaches on Lake Ontario, an exceptional marina and near-by campgrounds.

Cobourg has been recognized multiple times by MoneySense Magazine as "One of Canada's Best Places to Live" in populations under 25,000.

Cobourg's wastewater treatment facility had used chlorine as a disinfectant for its wastewater since 1969 and later added sulphur dioxide as a final step. In 2016, it needed to test a cost effective, chlorine-free wastewater treatment that would address a number of environmental, health and safety needs.

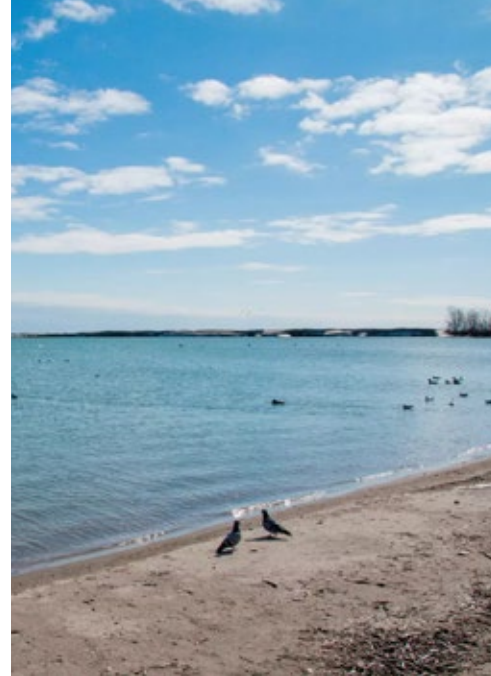
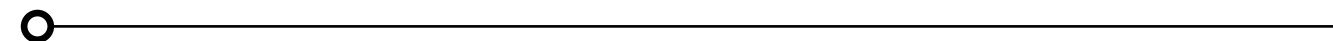


Image: Recognized as One of Canada's Best Places to Live, the Town of Cobourg provides an exceptional quality of living.



MUNICIPAL

Municipalities require processing of large volumes, to the highest health standards for drinking water.



Client Needs

- ≡ Protect aquatic life and decrease the town's environmental footprint.
- ≡ Compliance with all government regulations.
- ≡ Increase operational safety.
- ≡ Reduction of costs.
- ≡ Easily retrofitted with existing equipment within the footprint of the wastewater facility.

Fast Facts

CLIENT

Town of Cobourg

LOCATION

Cobourg, Ontario, Canada

DATE

2016

CONTAMINANTS

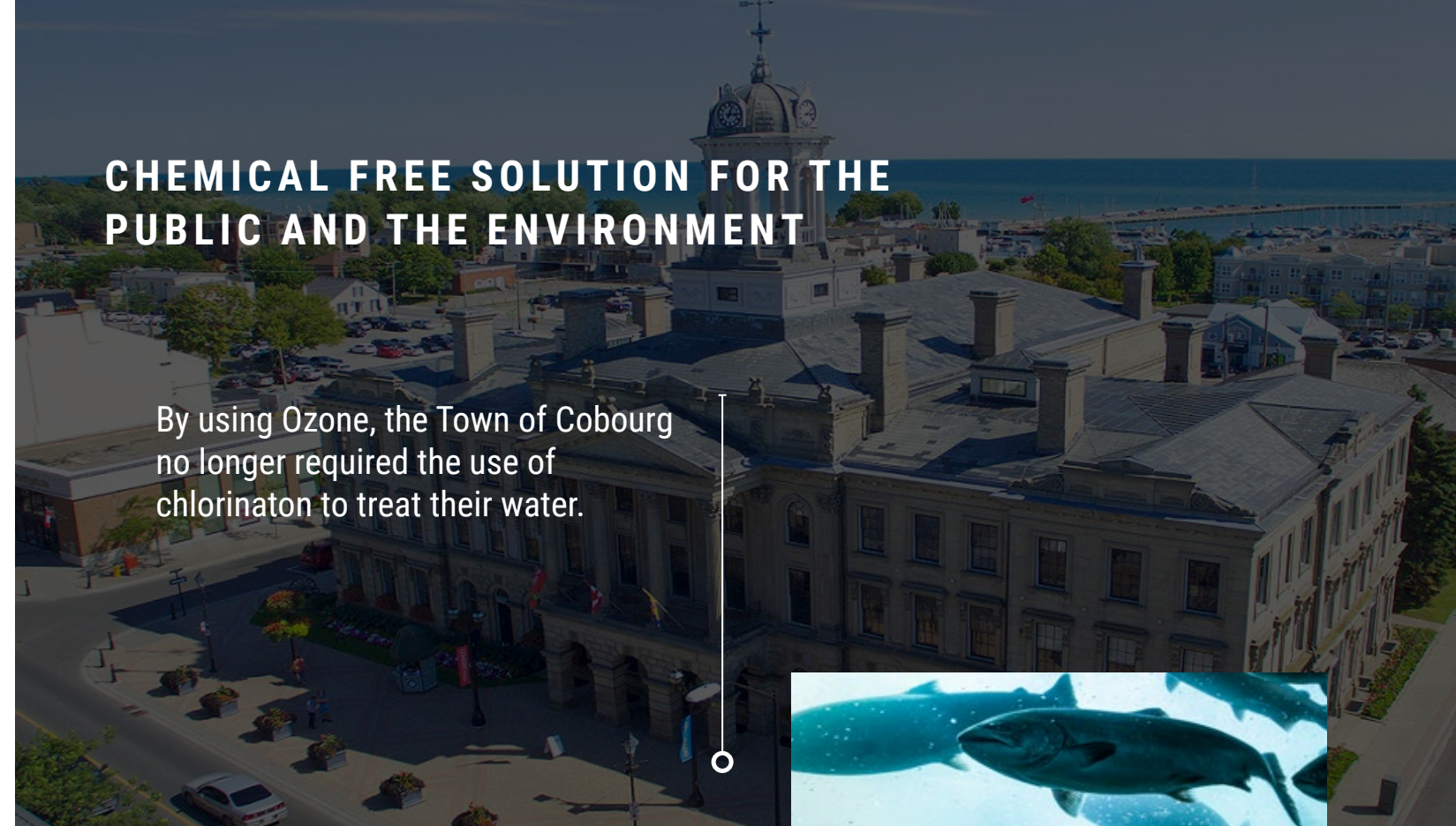
E-Coli, CEC's, Ammonia, Nitrates & Nitrites, Turbidity

FLOW RATE

16,000 to 36,000 m3/day

CHEMICAL FREE SOLUTION FOR THE PUBLIC AND THE ENVIRONMENT

By using Ozone, the Town of Cobourg no longer required the use of chlorinator to treat their water.



The Cobourg Wastewater Treatment Plant #1 has used chlorine to disinfect its effluent since 1969. Beginning in 2008, dechlorination with sulfur dioxide was also added to comply with Environment Canada requirement of <0.02 mg/L of chlorine entering the waterways. The addition of one chemical to neutralize another, is an inefficient use of municipal funds and needlessly adds chemicals to our waterways. Balancing these chemicals to ensure compliance with both provincial and federal regulations, is a very labor-intensive task that requires considerable attention from the Plant Operators.

In 2016, Cobourg was introduced to a new Ozone Disinfection System that claimed to require less capital outlay than traditional systems and consumed less electricity than traditional ozone systems.

Aclarus was eager to introduce their new system to the market and Cobourg was looking for a cost effective alternative to chlorine. With the financial assistance of a Green Fund Grant from the Federation of Canadian Municipalities, the Town of Cobourg and Aclarus embarked on a co-venture pilot study.

SOURCE: COBOURG WASTEWATER TREATMENT PLANT #1 - OZONE PILOT PROJECT: TECHNICAL REPORT

Image: Aclarus Ozone treatment significantly improved the dissolved oxygen level entering Cobourg Creek. The increased oxygen is a positive attribute for the native salmon and trout.

THE ACLARUS SOLUTION

With a Green Fund grant from the Federation of Canadian Municipalities, Aclarus and the Town of Cobourg undertook a full-scale pilot project in 2016 that integrated an Aclarus Ozone System into the existing infrastructure of the wastewater treatment facility.

During the project, water samples were collected and tested for E. coli, suspended solids, contaminants of emerging concern (CECs) ammonia, nitrates and nitrites, colour, and turbidity (water clarity).

The treated wastewater was also tested onsite for dissolved oxygen, dissolved ozone, chlorine, and the oxidation-reduction potential (ORP), which measures the disinfection power of the treatment.

Test results found no presence of E.coli, no chlorine or other chemical residual, reduced (CECs), reduced

colouration of water and an ORP level of >800 was reached in minutes, 16,000 to 36,000 m3/day. Ozone removed 80% of the effluent colour versus chlorine which removed only 25%.


Technical Specifications

- ≡ Control Panel with HMI/PLC Control
- ≡ Air Compressor - 88 SCFM
- ≡ Oxygen Generator – up to 65-SCFM with storage tanks
- ≡ Oxygen Generator – 1.2kg/hr 13% Transfer; Chiller cooled
- ≡ Ozone Injection System - maximize ozone mass transfer; includes ozone degas and off-gas destruct
- ≡ Oxidative Reduction Potential (ORP) Automatic Feedback Control
- ≡ 25Hp Pumps (x2)



THE BENEFITS

The Aclarus system resulted in a superior wastewater treatment solution with a number of benefits to Cobourg:



SAFE, AND CHEMICAL FREE,

There is no need to purchase, transport, store and handle chlorine and other potentially harmful chemicals.



COST-EFFECTIVE

Reduced monthly costs because there is less need to purchase/store expensive chemicals; costs about 5 cents per 1000 litres of water treated, significantly less than other treatments.



BETTER TREATMENT

Completely disinfects the water; removes colour; removes harmful metals, microplastics and other micro-organisms more effectively than other treatments.



ENVIRONMENTALLY FRIENDLY

There is no chemical residual or by-products; increased dissolved oxygen in the water improves the health of aquatic species.



REGULATORY COMPLIANCE

The treated wastewater meets or exceeds all environmental regulations;



EASY INSTALLATION AND MAINTENANCE

The system is was easily retro-fitted and installed into the existing building to help keep infrastructure costs low; easy to use, takes up little room, and is modular for easy expansion or service.



The Aclarus System performed flawlessly since its installation. It provides adequate disinfection during peak Plant loading and can operate continuously at 100% output without failing. This led to consistent disinfection where E. coli population were reduced by 99.9%



- Bill Peeples, Manager Environmental Services, Town of Cobourg

WHY ACLARUS?



Ozone is a superior chemical-free disinfectant effective at treating the most complex water problems including the following:

Pathogens

- Bacteria (E. coli, Streptococcus, Cholera, Pseudomonas, Mycobacterium)
- Virus (Adenovirus, Legionella, Rotavirus, Salmonella, influenza, hepatitis, polio)
- Cysts; (Giardia, Crypto, Cyclospora, E. Dispar)

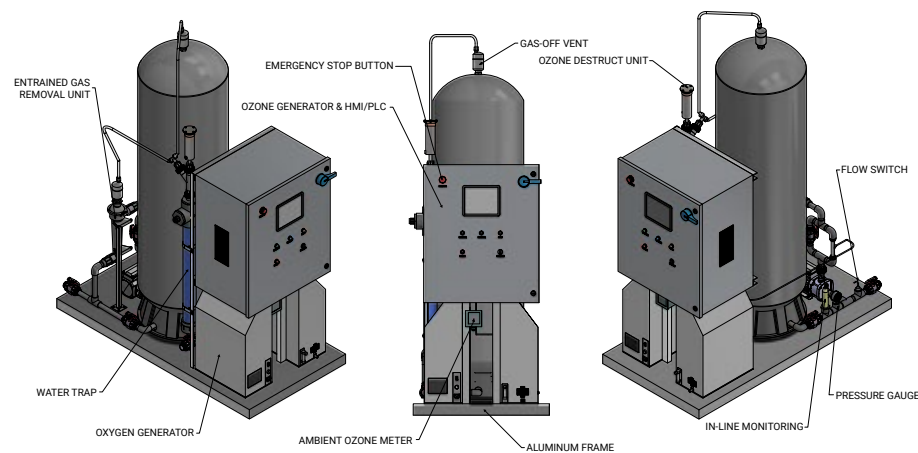
Contaminant

- Metals (Iron, Manganese, Sulphur, Lead, Arsenic)
- Organics (Biofilm, Algae, Tannin, Colour, NOM)
- Inorganic's (Cyanides, COD)

Contaminants of Emerging Concern

- Pharmaceuticals; Personal Care Products
- Hormones, Antibiotics, Medications
- Estrogen, Sulfamet, Oxycodone, Ibuprofen, Triclosan
- Amphetamines, Cocaine, Opioids
- PFAS (per & Polyfluoroalkyl Substances - Teflon)
- Micropollutants & Microplastics

ACLARUS TYPICAL SYSTEM DESIGN & FEATURES





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GET IN TOUCH



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