

Disinfection Process Optimization in Wastewater Treatment Plants Using VeloCens

Today, without rapid E.coli test results, wastewater treatment plants almost always over-disinfect their wastewater to stay far below their regulatory compliance limit. VeloCens paints a picture of drinking water, wastewater and raw water sanitary conditions in a given jurisdiction in real-time, enabling data-based decision making. This project is designed to deploy VeloCens in two wastewater treatment plants in Alberta with one main goal: optimizing the disinfection process using rapid E.coli tests. The main outcome for this project is to quantify the cost saving and environmental impact reductions when rapid E.coli results by VeloCens are used to optimize disinfection processes.



RECIPIENT:
Roshan Water Solutions Inc.



PARTNERS:
ARROW Utilities,
Advancing Canadian
Wastewater Assets
(ACWA)



TOTAL BUDGET:
\$393,000



AI FUNDING:
\$171,500



PROJECT DATES:
NOV 2023 –
NOV 2024



PROJECT TRL:
Start: 8
End: 9

APPLICATION

VeloCens has broad applicability for real-time monitoring of E.coli and Total Coliforms. VeloCens is well suited to support optimizing processes and operations at water treatment plants. Future applications include monitoring water quality in food & beverage facilities, agriculture and recreational waters.



ALBERTA INNOVATES CLEAN RESOURCES

ENVIRONMENTAL INNOVATION

WATER INNOVATION PROGRAM

PROJECT GOALS

The overall project objective is to deploy VeloCens in two Alberta wastewater treatment plants and quantify the cost savings and environmental impact reductions when rapid E.coli results by VeloCens are used to optimize disinfection processes.

BENEFITS TO ALBERTA

The project could result in the following benefits to Alberta:

- Annual O&M cost reduction for disinfection processes at wastewater treatment plants (up to \$1M per plant).
- Growth of an Alberta based SME, including 5-7 new jobs.
- In the case of wastewater treatment plants using UV disinfection, optimizing the process means using significantly lower UV powers and lower electricity. Wastewater treatment plants could reduce their GHG emission by 2000 t/yr per plant.
- In the case of wastewater treatment plants using chlorination disinfection, the major environment hazard stems from formation of chlorination by-products also known as Disinfection By-Products (DBPs). Through optimization, wastewater treatment plants could reduce their chlorine consumption by up to 50% and reduce the chance of associated DBP formation.



1-10 Future Jobs



**2 Students
Trained**



**10-100 kt/yr Future
GHGs Reduced**

CURRENT STATUS

JAN 2024

The project recently kicked-off. The first milestone will be completed in May 2024.