



## Super-Oxygenation Technology to Support Water Treatment Processes

Northwest Hydraulic Consultants Ltd. is advancing a research project initiated at the University of British Columbia to evaluate potential superoxygenation as a viable method for increasing the efficiency of oxygen transfer in water treatment processes. The research furthers the university's efforts by pressurising a Speece Cone (developed by Dr. Richard Speece, at Vanderbilt University, Nashville, Tennessee) while adjusting oxygen inflow and ambient particulate concentration. Development of processes to mitigate against oxygen loss due to effervescences is also being considered.

Oxygen transfer efficiency can account for 60 percent of water and wastewater treatment energy requirements. The potential to reduce overall aeration facility footprint size and operational costs while increasing overall quality of water and wastewater treatment is significant.

APEGBC members: Ken Christison, P.Eng.; Dr. Don Mavinic, P.Eng.; Tyler Barber, EIT

## Mara Lake Water Treatment Plant

Opus DaytonKnight was the prime consultant for the design, construction, and commissioning of the District of Sicamous' Mara Lake Water Treatment Plant. The new \$7.9-million plant officially opened in February 2016, and provides water that now meets the BC Drinking Water Treatment Objectives for Surface Water Supplies. It allowed Sicamous to lift its three-year water-quality advisory.

The compact facility uses hollow-fibre membranes to treat up to 8 megaLitres/day from Mara Lake, and is expandable to 12 megaLitres/day. The custom board-form finished concrete, LED accent lights, and building angles maximise floor space while producing a visually attractive building at the town's entrance. An underground pump station and special sound treatments help the new building operate almost silently.



Lead consultant: Opus DaytonKnight; Sub-consultants: GTA Architecture Ltd., BENCH site design inc., WSP (Levelton), MHPM; Contractor: Maple Reinders.

## Clean Water for Remote Northern Community

BI Pure Water Inc., Port Kells, BC, designed, manufactured, delivered and installed a package water-treatment system for the Government of Nunavut. The 20-metre-wide, 84-metre-long building was trucked to Hay River in four sections and barged up the MacKenzie River to site in Cambridge Bay, on Victoria Island, north of the Arctic Circle.

The highly insulated building contains a standby generator, electrical motor control centre, boilers, process piping, media filters, ultraviolet disinfection units, pumps, programmable logic control system, lighting, and ventilating equipment. Also designed and manufactured for this project are 570,000-litre and 60,000-litre water tanks, and 17 insulated underground valve vaults.

BI Pure Water engineers used "Design for Resilience" when conducting the detailed design to help ensure the infrastructure and system sustains operations during and after the impact of severe disturbances.

APEGBC members: Paul Anderson, P.Eng., FEC, Jim Tam, P.Eng., Guan Wong, P.Eng., Catherine Anderson, EIT, George Thorpe, P.Eng.

