Chilliwack to produce biogas from new Molson Coors brewery

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GWE ANUBIX-B technology is being used by the City of Chilliwack to achieve high effluent quality from high strength brewery wastewater.

Photo provided

April 3, 2018 - A far-sighted local government is working with one of the world's leading brewers to protect its pristine regional environment with an outstanding wastewater pre-treatment facility for a new brewery that is set to become a major employer in the district.

The City of Chilliwack, B.C., is building the Global Water Engineering high strength wastewater pre-treatment facility to handle effluent from the new Molson Coors $200-million plant in the Fraser Valley, which will produce beverages made with mountain-fed water at the foot of the North Cascade Mountains.

The 230-year-old beer maker, with 18,000 employees at 31 breweries selling product in more than 50 countries, is scheduled to start production in its new state-of-the art Chilliwack brewery in 2019, delivering about 1,000 jobs in the construction phase, with another 100 working at the brewery as it attains full production.

The City of Chilliwack's new GWE ANUBIX-B anaerobic wastewater pre-treatment installation has been engineered to protect the environment by delivering a proven level of treatment performance of 85-90 per cent BOD and COD removal, which are measures of the amount of potentially polluting organic content in the wastewater. The ANUBIX-B technology – proven globally in food and beverage applications – is purpose-built to treat wastewaters rich in organic content.

Wastewater from the new brewery will be pumped to the new Chilliwack pretreatment facility, located adjacent to the existing municipal treatment works, from which it will then pass to the existing Chilliwack Waste Water Treatment Plant for final polishing and ultimate discharge. The pretreatment plant – which generates operating income for the City while removing the need for the brewery to invest in its own operators – has a capacity of 1,500 m3 of wastewater a day, with removal of 7,500 kg a day chemical oxygen demand, COD.

Far-sighted
In addition to producing high quality effluent, the proven anaerobic design will require far less energy than conventional aerobic treatment solutions, produce far lower levels of waste sludge and need less chemicals, says Global Water & Energy vice-president, Ian Page, whose company is a subsidiary of GWE.

"The City of Chilliwack and MolsonCoors have worked together in a far-sighted manner to deliver an outstanding wastewater pretreatment process that reliably safeguards the environment while facilitating jobs. The new plant – the third GWE facility installed to achieve high quality treatment of MolsonCoors wastewater at different facilities – uses a proven process to deliver its results immediately and reliably over the long term. The technology being installed here is the latest and best based on more than 200 similar brewery projects successfully completed by GWE," says Page.

As a bonus, the plant will also be able to produce biogas from the anaerobic digestion process. A portion of this will be used initially to heat the wastewater entering the anaerobic reactor, replacing any need to use fossil fuels to power the heating process involved. The excess biogas generated will also ultimately be available for resale

commercially, adding to the financial and environmental benefits of the pretreatment plant," says Page.

"Based on results already achieved for MolsonCoors and at GWE wastewater treatment and waste-to-energy plants in North America and worldwide, the plant could ultimately achieve average daily biogas product of 910 kW a day, or 332 MW a year, if commercial customers are found," says Page. The combined effect of the high-quality wastewater produced, and potential use of the large quantities of biogas resulting, would be to further minimize the environmental footprint of this landmark local investment.

Similar GWE plants in the U.S., Asia and Europe are generating millions of dollars worth of biogas, with returns on investment (ROI) paying for themselves, and then going on to generate profits while they lower demand for conventional energy sources such as oil and coal.

GWE, headed by chairman and CEO Jean Pierre Ombregt, has successfully built and commissioned over 200 biogas utilization plants for clients worldwide over the past 15 years. Such plants produce green energy from pollution present in wastewater, using high-performance anaerobic bacteria to digest the dissolved and suspended organic matter, which is converted into biogas, a mixture of methane and carbon dioxide.

Food and beverage uses

The City of Chilliwack's ANUBIX-B plant is based on a proven and reliable GWE system, of which hundreds of units have been installed around the world. Its design is based on an Upflow Anaerobic Sludge Blanket (UASB) type of anaerobic reactor, which accepts relatively high amounts of the biodegradable suspended solids (SS) in the influent. Its high removal efficiency (85 - 95% BOD and COD removal) allows users to install smaller aerobic polishing treatment afterwards, while achieving low excess sludge production and power consumption in the small-footprint aeration polishing stage.

ANUBIX-B technologies have been employed at scores of breweries worldwide, including in the Americas, Europe and Asia. Different configurations of ANUBIX technologies are deployed at food, beverage and agribusiness facilities globally, where they are used to transform wastewater treatment effluent from a disposal issue to a profitable source of green energy.

Food and beverage processing plants – including animal and crop processing plants – can install their own pretreatment facilities before discharging water into public systems, or protect their environments and meet statutory requirements using custom-designed municipal facilities such as the City of Chilliwack's.