GREEN

THE ULTIMATE IN RECYCLING

By Summer Bracey

Although the business may not be glamorous, the results sustain some of Kelowna's most iconic features. The City of Kelowna's Wastewater Treatment Facility, located on Raymer Avenue, cleans the water we drain or flush so it can replenish our beautiful Okanagan Lake, creates the aptly-named Ogogrow (nutrient-rich compost) and helps to heat Okanagan College, facilitating the growth and expansion of young minds.

The cycle begins when you flush your toilet, take a shower, drain your dishwater or wash your car. Water and waste travels through the City of Kelowna's 475 km of underground sewer pipes on its way to the Wastewater Treatment Facility. Upon arrival, screens, grit removers and primary clarifiers remove solids from the wastewater. Sludge is pumped to the fermenters and organic material, to the dewatering facility.

Getting the bioreactor treatment

Water then travels to the bioreactor where microscopic bacteria eat most of the remaining organic matter. Full and happy, the bacterial cells float to the secondary clarifier, sink to the bottom of the tank, travel back to the bioreactors, where they are plumped and pumped to the dewatering facility. The cleaner water flows through an extensive filtration system and is disinfected by Ultra Violet light. The UV lights are strong enough to warrant an emergency shut-off device, triggered when water levels get too low. If your eyes were exposed to the lights, they would be damaged within seconds; your skin in minutes – just imagine what it does to those stubborn unwanted bacteria cells. The resulting newly cleaned water is then pumped out into Okanagan Lake through a pipe, venting more than one km off the shore and 65 m deep.

Wastewater heat recovery

In a new relationship with neighbouring Okanagan College, some of the reclaimed water is pumped off to the school, acting as part of its heating system. This preheat, generated by the natural decomposition process, is captured and used as a sustainable way to heat surrounding buildings, including the new Centre for Learning, saving energy and money. After the water cycles through the campus, it is routed back to the Wastewater Treatment Facility and returned to Okanagan Lake.

Beneficial biosolids

At the dewatering facility, solids that were pumped from the fermenters and sci-fi sounding bioreactor are further processed to become a nutrient-rich sludge used as the base for Ogogrow compost material. Biosolids contain essential plant nutrients and organic materials that replenish soil and retain moisture.

At the Regional Compost Facility, the biosolids are mixed with wood waste and water to create the perfect composting environment. The resulting mixture is then piled on top of an aerated floor that forces air through the piles, promoting decomposition. The piles heat up and exceed 55 C for at least 21 days. This amount of heat ensures that any remaining pathogens are wiped out, making the material safe for humans to handle.

Safe, nutrient rich compost

Decomposing and further composting continues for an additional four months. As the compost matures, it gets darker and takes on an earthy smell. Excess wood waste is removed and testing is conducted for pathogens, nutrient value, moisture, PH and metals content. Test results are submitted to the Ministry of Environment for final approval and must meet all the requirements of the Canadian Food Inspection Agency and the Organic Matter Recycling Regulation before it can be used.

The approved dark, rich looking Ogogrow product is then sold and distributed in bulk to local retail outlets, landscapers, orchardists and nurseries for purchase and use by customers throughout the Central Okanagan.

Giving recycling a new meaning

From start to finish, Kelowna's wastewater cleaning process attempts to be less wasteful, utilizing many steps along the way for other beneficial outcomes. The resulting water replenishes Okanagan Lake, heat produced is captured and used at Okanagan College and the biosolids are used to nourish local yards. It's a dirty job, but the Wastewater Treatment Facility produces so many environmental benefits that, in the end, it comes out smelling like a rose.

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