ABOVE: A view of reverse-osmosis equipment for wastewater treatment at the Quintex plant in Winnipeg, Manitoba, Canada. This filtration equipment allows the company to reuse roughly 85% of its water.

WHY RECYCLE? ...

OPERATORS OUTLINE STRATEGIES FOR SAVING WATER

Laundry execs reflect on their motivations, including, compliance issues, managing amid scarcity and being 'green'

By Jack Morgan

Quintex, a family-owned industrial independent in Winnipeg, Canada, has made extensive investments to recycle roughly 85% of the water they use for processing textiles. They do this not only to boost efficiency and ensure compliance, but because the company's leadership team is committed to environmentalism.

"We want to be green," says President and third-generation owner David Quinton, whose company has made significant progress in areas including water conservation. "This was a big step for us. But we thought 'The sooner the better.' So yes, we're happy we did it. We think it's important, environmentally, for our company. We try to show it's 'green.'"

SUSTAINABILITY FIRST

Quinton acknowledges that the company's investments in conservation, including microfiltration and reverse-osmosis (RO) systems from Kemco Systems, are primarily driven by the laundry's commitment to sustainability—rather than a response to drought conditions, exploding utility costs or compliance issues in their largely rural province of Manitoba. "The truth of the matter is it was mainly driven by being green, environmentally friendly," Quinton says. "Costs were going up, but this is not an ROI (return on investment) situation. But I think if you plan to be there in the long term—and you can go that way—it's the right move for the company."

Quinton says he's pleased with the company's effort to reduce its use of fresh water from the local utility. Thanks largely to the upgrades noted above, starting in 2016, Quintex returns to the city only about 15% of the water it uses to process roughly 200,000 lbs. (90,718 kg.) of moderate-to-heavy soil per week. This water-saving initiative represents a major capital investment, he says. It also requires significant upfront support, plus follow-up efforts, including cleaning and monitoring by the company's maintenance team. "There's a lot of moving parts that have to keep going," Quinton says, noting that staff clean the equipment weekly to keep the recycling systems running properly. "We do a weekly clean out on them," he says. "They have to 'back flush' it." One advantage for Quintex is that since the plant operates on a four-day work week, staff can do routine maintenance on the water-recycling equipment on Fridays, when the plant isn't doing production. The installation also required the construction of an add-on to the building to accommodate the system's footprint.

Other issues that pose challenges for Quintex include the recent supply-chain delays, coupled with administrative slowdowns in moving goods across the U.S. border. Canadian companies pay roughly 30% more for U.S.-made goods due to variations in exchange rates between the Canadian and U.S. dollar. For example, in recent months Quinton says a motor went bad and the company faced delays in getting a replacement. Quintex stocks a lot of spare parts for just such a contingency, but the motor was too large and no one expected problems with it anyway. Another challenge centers on high levels of soluble biological oxygen demand (BOD) in the small amount of water that Quintex discharges to the

local sewage system. Because the water is recycled, less fresh water is added. The lack of dilution increases the quantity of soluble BOD in the water, i.e., soluble remnants of fats and other organic matter. That, in turn, means that in some cases Quintex has to pay surcharges for its sewer discharge. Tom Vanden Heuvel, president of Kemco, says his company is working to address the industry's soluble BOD challenges, but he adds that the savings in water, energy and overall reduction in waste going to the sewer far outweighs the costs or environmental impact associated with the surcharges.

We asked Quinton if the company's vigorous environmental stance has helped it win new business from customers and prospects, He says, yes, but it's not a critical factor like price. "I think it helps some people," he says. "Some companies are very aware and ask for extra information about what you do in the community. I wouldn't say it's really got us any sales, and that was not the purpose. We make them aware. But you know, it still comes down to 'Gee, that's really nice guys.' But we've got to be in the ballpark on costs."

SAVE OR PAY

The situation with water supplies and the emphasis on conservation varies in different parts of North America. In metro Atlanta for example, commercial laundries like United Hospitality Services (UHS) in Austell, GA, a southwest suburb, is confronting not only water shortages, but also sewage capacity constraints with rigid guideline mandates. In this case, the shortages aren't driven by drought, as happens frequently in the western U.S., but rather by the fact that water capacity in this fast-growing metroplex of 6.1-million people has failed to keep pace with booming demand from residents. "It's all the infrastructure," says Phil Sharpe, president and CEO of UHS. "It's not actually a supply issue, it's more about handling the effluent."

In essence, the problem for metro-Atlanta laundry operators is that the water treatment systems haven't kept pace with growth. Areas of Florida also are experiencing rapid growth and water diverted to the Sunshine State has helped put commercial users like UHS in a bind, Sharpe says. "There's been a lot of controversy over that, the amount of water that goes to Florida," he says. However, the issue for UHS centers on the processing of effluent. UHS operates under strict limits with heavy fines imposed on operators that exceed a set total. Sharpe says the Cobb County authorities are professional; however, they are strict. "They've been great to work with, although if our effluent runs above 33,000 gallons per day, we were charged $7.25 per gallon." To meet the challenge of managing throughput while staying under the limit, UHS sought the help of an outside contractor. The company has significant experience in other manufacturing environments, such as poultry-processing plants. In effect, they act as a "middleman" that oversees water use for the company. "Basically what they did was for every gallon of water that they recycled for us, it was metered," Sharpe says. "So they would charge us for water, just like the city would." "Obviously, this reduced the amount of water that we buy from the city and the reason why I did that was because I knew that." The water vendor uses modern water-filtration and recycling systems on-site, and shares information on daily-use rates with UHS, he says. "Operating a well-run reuse program is critical," Sharpe says,

Dealing With BOD (Biological Oxygen Demand)

Biological oxygen demand is comprised of remnants of fats and other organic materials that end up in wastewater after laundering, says Tom Vanden Heuvel, president of Kemco systems, Clearwater, FL. Not all BOD is created equal. There are two types of BOD. Every laundry has a mix of:

- Insoluble BOD (particulate). These wastes are removed efficiently with dissolved air floatation (DAF) and are nearly entirely taken out with microfiltration. Insoluble BOD typically is removed from the plant via filter press or sludge hauling.

- Soluble BOD is dissolved in the water; it will pass through the DAF and microfiltration systems untouched. Soluble BOD (and all other dissolved constituents) is rejected by the reverse osmosis (RO) membrane that leaves the recycled water free of all BOD, unlike the recycled water from a microfiltration system, which would still contain the soluble BOD and total dissolved solids (TDS). These can include inorganic as well as organic materials. The rejected water from the RO process will contain all of the soluble BOD in a much smaller portion of the overall plant flow. In most cases, the RO reject water can be released to the sewer. Certain plants may incur a BOD surcharge. However, it will be a fraction of what it was prior to recycling the water, says Vanden Heuvel. Kemco is continuing to invest in research and development to help customers avoid these rare instances of wastewater fees.

Vanden Heuvel likens insoluble vs. soluble material to marshmallows in cocoa. The marshmallows are insoluble, and you can easily remove them from the mug. Removing the cocoa (soluble) from the milk is a whole different story.

noting that the company has excellent technology that is regularly updated, coupled with on-demand metrics and reporting. "That keeps all key players in the know up to the minute on the efficiency of the system," he says. The water reuse company provides 24-hour monitoring, as well and local representatives that are available for assistance if needed.

Given the water-use situation in the Atlanta area, Sharpe says the use of an outside partner to oversee water-conservation made sense. "We're a start-up company," says Sharpe, a former Crothall executive who launched UHS in 2016. "We didn't have the resources. We didn't have the technology in our engineering staff to manage something like that. I just I wanted them to maintain a presence with us and that relationship has worked well."

A second element that contributes to UHS's water-recycling efforts is its use of two Pellerin Milnor Corp. PulseFlow® tunnel washers. The tunnels, each with 12, 150-lb. (68 kg.) modules, help keep the overall water-use rate (including a small number of conventional washers) at roughly .33 gallons per lb. washed. In essence, water is recycled and reused three times before it's discharged to the sewer. Sharpe says the tunnels help UHS limit water consumption, while processing roughly 460,000 lbs. (208,652 kg.) per week in their 43,000-square-foot (3,994-square-meter) facility. "The Milnor PulseFlow technology has made significant improvements in the reduction of fresh water consumed," Sharpe says.

BUSINESS IMPERATIVE

For Harry Kertenian, owner/CFO of Magic Laundry Services Inc., Montebello, CA, conserving water is as natural as looking both ways before crossing a street. For most operators, saving water is a standard practice for running a laundry in drought-prone Southern California. Kertenian, who is expected to begin test washing this month at a new plant in San Bernardino (roughly 60 miles east of Los Angeles), says local authorities don't lobby laundries to save water, but the high costs spur conservation. "As long as you pay your bills, there's no pressures here," he quips. With that said, saving water at the new Magic plant that will service hotels in both Los Angeles and San Diego is critical to meeting both fiscal and community expectations. "If you're going to go out and build a new laundry, it's almost impossible," he says, speaking of the need to minimize one's resource footprint, especially for water.

Kertenian is installing a Kleenwater system from Kemco Systems in the new plant. That combination of ceramic microfiltration and reverse osmosis equipment will allow him to reuse 80%-85% of the washwater Magic uses. He selected an RO system because of the high reuse percentage and its ability to filter out impurities from the wash process.

The water savings that the new plant will get from recycling will come on top of the fact that the new Magic plant will operate essentially "off the grid" in terms of piping in water from the local utility. The reason is an on-site well that Kertenian says is sufficient to meet the plant's needs for the indefinite future. Even better, the water—located deep underground—is naturally heated by geothermal energy. The water will pump out at 95°F year-round. Another plus is the fact that the water is naturally "soft" i.e., it doesn't have excess calcium, magnesium and other minerals that are present in hard water. These minerals can hinder cleaning and leave residues on fabric, making whites look dingy. "We're going to probably be the only laundry in California that has its own underground water," Kertenian says. "So we're not going to rely on any municipalities. Basically, we're going to pull our own water from the well that only has a few users and they're licensed users in our area. There are no permits for it, so we were able to grandfather that in through another company."

With Magic's investment in the water-reuse system, coupled with its access to soft, pre-heated well water, Kertenian has both enhanced the plant's competitiveness in the Southern California market, while at the same time boosting its environmental credentials.

WIN-WIN SAVINGS SOLUTIONS

Going forward, the question for laundry operators in 2023 and beyond is how much further can they go in terms of both reusing water and managing wastes to avoid disposal surcharges. Kemco's Vanden Heuvel says situations like the one Quintex has faced with surcharges are uncommon but not unknown. If you're recycling large quantities of water, the relatively small amount that's discharged is likely to have a higher concentration of soluble BOD or chemical oxygen demand (COD), which are soluble remnants of detergents and bleaches. Vanden Heuvel says Kemco is conducting research to address these scenarios, but the solutions may require the use of chemicals and/or energy that could raise questions about sustainability, as well as costs.

In any event, Vanden Heuvel commended Quintex's stance on sustainability, noting that the company is making important strides in conservation. "He's one of the very few guys that I've actually seen put his money where his mouth is when it comes to doing things for conservation," Vanden Heuvel says of Quinton. "He is saving 80%-85% of his total water flow. He's sending less water to the sewer. He's sending 60%-80% less BOD to the municipality." While the BOD levels in the water that Quintex does discharge are more concentrated, there's still far less water and waste going to the sewer. This represents a win-win for the company, for local authorities and for the general public, he says. TS

JACK MORGAN is senior editor of *Textile Services*. Contact him at 877.770.9274 or *jmorgan@trsa.org*.

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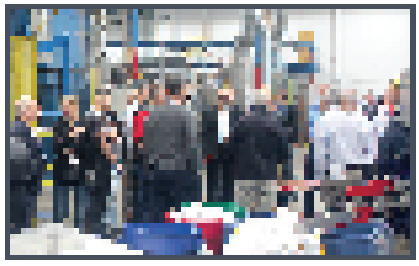

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