Above: A ceramic-filtration system for washwater at Mickey's Linen in Villa Park, IL. The three ceramic-membrane cannisters can process 70-80 gallons per minute (GPM). The ceramic-filtration system for rinse water has two canisters that can process 40-50 GPM.

Innovation Drives Efficiencies—

Saving Water & Energy

Operators boost conservation with system modifications and new technologies

By Jack Morgan

When Phil Vershaw joined the engineering team at Mickey's Linen in 2019, he was amazed at the performance they were getting out of their washer/extractors—a practically unheard of rate of .6 gallons per lb.

Fine-Tuned Performance

"This is the first plant I've been in that we were able to get to that level," says Vershaw, who serves as chief engineer for the Chicago-based regional company's plant in Villa Park, IL, about 20 miles west of the Windy City. "With tunnel plants it's a little easier because of the built-in water reclamation that they have. But when you're dealing with washer/extractors, depending on your mix, I mean you can be anywhere from a gallon and a half per pound to over 3½ gallons per pound. And when you're doing F&B (food and beverage textiles) and things of that nature, a lot of times you're closer to that 3½ gallons per pound."

Initially, Vershaw questioned the figures for the plant's washer/extractors, so he conducted his own review. "When I came in here, I had to do the math myself," he says, thinking "'This can't be right.'" Then he determined that the computations were, in fact, correct. "I'm like, 'Wow, we actually are doing that well.' This is amazing!"

Vershaw credits a finely tuned ceramic-filtration system from Norchem Corp. for the outstanding efficiency of the plant's wash aisle, which includes:

- four 900 lb. (408 kg.) Ellis Corp. washer/extractors
- two 450 lb. (204 kg.) G.A. Braun Inc. washer/extractors, and
- two 140 lb. (63 kg.) pony washers from Pellerin Milnor Corp.

The plant's ceramic-filtration system includes one canister that captures wash water, which comes in a 110°-115°F and has high alkalinity. The plant uses a Ludell heat exchanger to reclaim this heat. That practice eliminates the need to preheat incoming water from the city, he says.

A second canister processes the rinse water, which is reused in the earlier steps of the wash after bleaching, he says. Limited quantities of fresh water are used to supplement as needed. "You can use fresh water, so we do add a little bit of fresh water to the recycle tanks at some points," Vershaw says, adding that they also use a heat exchanger. "It's all part of that process. If, say the wash water, that tank was full and we still have water in the pit, that water would be recycled but then sent through the heat exchanger."

Vershaw credits the plant's outstanding results on water use to regular monitoring and maintenance of the operation to maximize performance. "We usually test several times a day to check water clarity. If we do have something like a broken boot seal on the ceramic filter, we address it right away."

The plant processes mostly light soil F&B aprons and outpatient medical textiles. These goods don't put a significant strain on the ceramic-filtration equipment," he says. The system rarely has problems. "Honestly, we've been pretty good with it," Vershaw says. "The mix that we have here isn't the heaviest as far as heavy soils, so I think that plays into our maintenance on it. If you're doing a lot of bar towels, a lot of heavy FOG (fats, oils and grease) aprons, that would probably put a greater strain on those ceramics. A lot of

the stuff we do is light." The plant's product mix is roughly 50-50 F&B and outpatient medical, with very minimal heavy soil.

Located in DuPage County, IL, the the plant's effluent is monitored by the Salt Creek Sanitary District. "Since this system has been installed, we've never had a compliance issue," Vershaw says, referring to the ceramic-filtration system. "We're always well below our rated ranges and our pH." The accumulated sludge from the wash aisle is collected and removed regularly for reuse as fertilizer and other products. "About every three weeks or so we have them come in; they take all that oil tank sludge, and they haul it away and recycle it," Vershaw says.

The plant's 38 production employees work five days a week, processing an average of 170,000 lbs. per week (77,110 kg.).

Another operator, Wildman Business Group (WBG), Warsaw, IN, recently installed and modified a heat reclaimer that's netting significant savings on natural gas for this regional industrial operator. "At our Warsaw plant, we recently upgraded our wastewater-heat recovery system from a plate frame heat exchanger to an oversized tube and shell," says Corporate Engineer Jeremy Jabaay. "This has allowed us to double our average BTU recovery. This is not a new technology, but we did apply it in a slightly non-standard way with over-sizing it." When we asked Jabaay to identify the vendor that supplied the new system, he said the equipment was purchased second-hand and reconditioned in-house. "As for the equipment, that was an internal project," he says. "We sourced the heat exchanger on the used market. We had it completely refurbished and then integrated it ourselves."

As for compliance, Jabaay says no government agency is currently testing his company's effluent for perfluoroalkyl and polyfluoroalkyl substances (PFAS). Regulators have raised health concerns about this substance that's sometimes used in flame-resistant garments and other textile goods. One regulatory change that's worked in the company's favor is a recent increase in the discharge limits on copper from .03 mg./l to 1.69 mg./l. "This was big for us," Jabaay says. "At .3 we bumped into it from time to time. We came to find out .3 is incredibly low."

Other companies, such as Ecotex Healthcare Laundry Service, Vancouver, BC, are adding new equipment to boost productivity, and lower energy/water costs. "Ecotex has installed new tunnel washers and dryers in two plants to increase efficiency and capacity," says President

and CEO Bryan Bartsch. "The utility efficiency is one of the benefits of new equipment."

Earth-Friendly Tech Advances

Chris Welch, president of Prudential Overall Supply, Irvine, CA, notes that innovations aimed at reducing this national company's carbon footprint, are paying dividends in the form of savings on energy costs. "We continue to install solar (panels) where appropriate," he says. "As well, we are retrofitting all of our facilities with LED lighting and updating the floors to reflect more light. Maintaining and properly operating heat reclaimers is an ongoing area of focus in our business." At the same time, Welch notes that energy costs are generally steady or declining. "Utilities are relatively stable but very market dependent," he says. "Fuel in general has been on the decline, with some sharp downward swings recently, after increases early in 2025. As for PFAS, Welch noted that while some POTWs are testing the company's effluent, none are imposing enforcement standards at this time. Broadly speaking, regulatory enforcement is steady, but there's less urgency under the administration of President Donald Trump. "It's fairly consistent in most markets, but there does appear to be a feeling of 'pause' as local agencies try to get a bearing of the new administration's approach for the next four years," he says.

For Paul Jewison, general manager of Textile Care Services, Rochester, MN, utility costs are rising due to policy shifts. "Trends are higher," says Jewison, who's also a vice president for the Healthcare Linen Service Group (HLSG), a regional chain based in St. Charles, IL. "New regulations on water and sewer with PFAS rules, look to increase costs," he says. "There's lots of uncertainty with electricity as coal-fired plants continue to shut down." Another source of uncertainty is President Trump's recent moves to hike tariffs on goods entering the U.S. from a host of countries, including China, Canada, Mexico and the European Union (EU).

Jewison is well known around the industry for modifying various systems, including tunnel washers, dryers, heat exchangers and more, to save energy and water wherever possible. Last year, TCS completed a $10-million plant makeover that was designed in part to lower utility costs. One relatively new system that Jewison cites is the plant's installation of Vistex Omni Systems from Gurtler Industries Inc. on each of TCS's three new tunnels to save on water/sewer consumption, while improving quality. The Vistex system treats tunnel rinse water with UV light and advanced oxidation, Jewison says. This allows for greater water reuse, cleaner goods and enhanced hygiene.

Tech & Tweaking Saves $

As the Aug. 23-26 Clean Show approaches, linen, uniform and facility services companies are looking closely at advanced technologies, from heat-reclamation systems to water-treatment programs that can save on water, natural gas and electricity. The comments noted above indicate that there are ample opportunities available to improve these systems, including water consumption rates in washer/extractors that potentially could make them competitive with tunnel washers. The key is to focus on innovations aimed at continuous improvement.

Advances can come from reworking systems internally or by adding equipment that reduces your use of water and energy needed to process textiles. Where do you want to save? The choice is yours. **TS**

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