Seven Entries Earn Awards in the 2019 Operator Ingenuity Contest

Every year at WEFTEC, the Operator Ingenuity Contest awards operators who find simple, applicable solutions to everyday problems. WEFTEC® 2019 hosted the eighth annual Operator Ingenuity Contest awards ceremony on Sept. 25. In 2019, seven new winners joined the ranks of the nearly 50 other fixes that made people's jobs easier and safer.

The Muckraker Award

This award went to Mike Wenner of the City of Napoleon (Ohio) for creating a tool to help solids dry more quickly. Wenner fabricated a large rake from a piece of steel angle and welded to it several portions of cut pipe. The rake gets attached to a front-end loader. The loader can now be used to rake the solids in the drying bed, increasing its surface area and drying it much faster than was previously possible.

The Goody Bag Award

William Paddock of the South Orange County Wastewater Authority (Dana Point, Calif.) received this award for his invention of a fisheye filtration system. After discovering fisheyes (globules of polymer) were blocking his facility's polymer flow switch and ball checks and triggering multiple "low polymer flow" alarms daily, Paddock knew something had to be done. Paddock and his staff decided to create a filter using an old chemical tote. They cut a hole in the tote and fashioned a filter from screen door material. It worked, but the process was labor intensive because they had to frequently clean the filter to maintain flow. After a few iterations, they landed on using a replaceable 600-micron bag filter that it could be replaced easily when full. They also installed a removable filtration platform that could be placed on top of any tote, and a pneumatic double diaphragm pump, which enables them to place the filtration system above the tank. Paddock credits his success to communication with staff: "I went to every single operator and asked 'what would make this better?' We got some really good ideas."

The Tight Squeegee Award

This award went to Charlotte Water's (Charlotte, N.C.) Johanna McHone for inventing a device to peel polymer slime off the polymer age tanks at her facility. Before her invention, she had to use a heated pressure washer to clean the tank sides. This had the risk of splashing scalding hot water or chemicals on the operator. It also consumed a lot of diesel, electricity, and water. Her fix was incredibly simple: She fixed a squeegee to a flexible broom handle. The tool just peels the slime off the tank wall.

The Sewer Sailor Award

This award went to James E. Segrest Jr. from the City of Auburn Water Resource Management Sewer Department (Auburn, Ala.). Segrest had a wide diameter sewer main that had to be inspected. The flow in the main was too great for the facility's crawler camera to be feasible. So, instead of sending a human in, Segrest attached a GoPro camera and flashlights to a cooler lid and floated it through the main. He attached the float to a reel of kite string to control its progress. The facility has used the sewer sailor several times.

The Bottle Bump Award

Perhaps the simplest and cleverest of all, this award went to James Petalio of the Rodeo Sanitary District (Rodeo, Calif.) who was dealing with constant chlorine dosing alarms after hours. The alarms triggered the facility's sodium bisulfite metering pump to run at 100% automatically to prevent a chlorine violation. The problem was solved by simply raising reagent bottles (acetate and potassium iodide buffer solution) from below the analyzer unit to above it. Removing the need for the reagent dosing pump to overcome the head of lifting it up to the analyzer stabilized the process and eliminated the alarms. This straightforward fix saved the district $1,200 in overtime costs and more than $12,800 per year in sodium bisulfite costs.

The Smooth Move Award

This award went to John Presta and George Pelzowski of the Corbett Creek Water Pollution Control Plant (Whitby, Ontario) who were dealing with jammed, manual, aluminum, channel sluice gates. The aluminum gates had fused to the aluminum channels. Staff often were resorting to cutting out the gate to resolve the problem.

To address this issue, the Corbett Creek team ordered new gates from various suppliers. Their clever twist came in how to install them: They welded side slide tabs to the new gates that let them fit in the original channels perfectly. They also added a rubber stop at the bottom of the gate to help the seal.

The Rag Spear Award

Matt Haggler from the City of Meridian (Idaho) received this award for skewering an irritating problem. The city's 3-million-L (800,000-gal) anaerobic digesters hadn't been cleaned in several years and the influent screens weren't working well. This meant wipes, rags, and hair had built up in the tank. The bound up material had created massive rag flotillas, which soon began to affect digester performance.

Haggler's solution was a 7.6-m-long (25-ft-long) long, 50-mm-thick (2-in.-think) solid steel spear head with collapsible tines. The spear can be attached to a crane and forced into the rag balls. Once stabbed in, the crane pulls the spear back out and the tines unfold. The tines hook into the rag ball like barbs, and the mass of material can be pulled out. The spear has removed rag balls weighing nearly 450 kg (1000 lb). The spear cost less than a few hundred dollars and has saved the city significant money in down time, and enabled the digesters to work properly.

Apply now for Operator Ingenuity 2020

Next year's contestants will certainly have big shoes to fill, but if past years are any indication, the idea will only get more creative and ingenious. If you have a simple fix that has made your job safer, easier, or more efficient, submit it for the 2020 contest.

The application period is open now and closes June 5. The contest is open to all. (The entry form includes a field for WEF Member ID number; this field is optional.) Find full submission details online at www.weftec.org/ingenuity.