"New Sewage" Necessitates New Innovation

Clogs in the Raynham, MA sewage system lead to development of advanced product technology from Gorman-Rupp

Located approximately 32 miles south of Boston, the Town of Raynham, Massachusetts (population 13,383) is a suburban community that also boasts a strong commercial base. As such, Raynham deals with the everyday difficulties typical of many similar sized communities in the United States—including sewer system problems.

The sewer department of Raynham has 4,240 customers and encompasses 75 miles of sewer line. Raynham presently has 27 lift stations in its municipal sewage system. Currently, the town is preparing to add additional lift stations to help serve the growing community.

The Problem

The past two decades have seen the dawn and daily use of nonwoven wipes in ever-increasing numbers. A multibillion-dollar business globally, a wide variety of nonwoven wipes are marketed in the U.S and are designed for personal hygiene and child care use, as well as for disinfecting and cleaning. Nonwoven wipes are especially useful in hospitals and long-term care facilities, having become a vital component in daily routine patient care.

While some of these wipes are designed to be flushed (as indicated by the manufacturer on the packaging), the vast majority of nonwoven wipes are not flushable and ideally should be disposed of in the trash. However, consumers and health care workers have taken the convenience aspect of these wipes to heart and flush the wipes, rather than throw them in trash or solid waste bins, regardless of the manufacturers' intent. This has lead to the creation of the term "new sewage."

This below-ground lift station is one of the 27 stations in Raynham affected by nonwoven "flushable" wipes.

"New sewage" refers to the increasing amount of solid debris—such as many varieties of nonwoven wipes—that finds its way into the sewage system. New sewage, according to experts, is responsible for a host of sewage system problems, including sewer backups, and pump breakdowns and overflows. Focusing specifically on the role of nonwoven wipes in this dirty situation, the circumstances are that the wipes do not degrade and break down fast enough or sufficiently enough from the time they enter the sewage system to the time they encounter the sewage pump. The wet wipes bunch together with other random solids and semi-solids

One of the 24 lift stations equipped with a self-cleaning wear plate, this base-mounted station has seen clogging drastically reduced.

creating clumps that can clog the sewer system and disrupt pump operation.

In the ensuing years since the rise in popularity of nonwoven wipes, the Town of Raynham began experiencing sewage pump clogging problems. The clogging issues were so disruptive and so frequent that two to four of the 27 total pump stations were affected every week. Raynham's sewer department was spending a substantial amount of money on the clogging problem. Every individual problem required two to three man-hours in travel time and maintenance to remedy. The alarms signaling clogging issues sounded day and night, each alarm requiring immediate attention by sewer department personnel, regardless of the hour. As a result, the Town of Raynham was spending more money in overtime than what they had previously budgeted.

For help in finding a solution to the continuous clogging problems, Raynham's sewer department called on the expertise of long time distributor Hayes Pump and its experienced, knowledgeable representative, Gerry Nye, to troubleshoot the issues. Hayes Pump has worked with the Town of Raynham since 1989 when the town's first Gorman-Rupp lift station was installed, and Nye was well informed as to the town's sewer system configuration and lift stations. Hayes Pump worked closely with sewer department officials to determine the town's sewage pumping needs. Through the years with the assistance of Hayes Pump, the sewer department expanded the town's sewer system to 27 lift stations, 24 of which were fitted with Gorman-Rupp equipment.

The Solution

After being contacted by Raynham sewer department officials, Nye consulted with his Gorman-Rupp District Manager who immediately began working with the research and technology staff at Gorman-Rupp to devise a solution to the Town of Raynham's problem. Gorman-Rupp's goal was to respond to the customer's problem with an immediate, economical solution that could be implemented quickly in the field.

Within days, Gorman-Rupp offered a solution to the clogging problem in Raynham—a self-cleaning wear plate.

The new, proprietary design of the self-cleaning wear plate allows for peak pumping efficiency while, at the same time, shedding the solids of new sewage that lead to clogging. The self-cleaning wear plate is also easily installed in the field.

In the case of the Town of Raynham, the new Gorman-Rupp self-cleaning wear plates were installed in several lift station pumps. The sewer department indicated clogging problems diminished from weekly incidences to an occurrence only once every six or eight months. Personnel overtime expenses dropped dramatically, easing the strain on the sewage department's budget.

Having solved the sewer clogging issues with the assistance of Hayes Pump and Gorman-Rupp, the Town of Raynham continues preparations for additional lift stations to accommodate the community's requirements. Based on the quality and dependability of the products and the responsiveness of the sales

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and technology teams, Raynham chose Gorman-Rupp ReliaSource® lift stations for the new installations.

About the Product

The Gorman-Rupp self-cleaning wear plate functions in the same manner as a standard wear plate: the wear plate is a replaceable component installed adjacent to a rotating open or semi-open impeller. The axial space between the stationary wear plate and the rotating impeller is called the face clearance and is held to a tight tolerance to reduce recirculation.

Available in cast iron, hard iron, stainless steel CD4MCu (cast duplex stainless steel alloy), or stainless steel 316, the wear plate is offered individually or in a full assembly.

In working with Gerry Nye and Hayes Pump, the Town of Raynham chose Gorman-Rupp ReliaSource® lift stations for all new installations.

About The Gorman-Rupp Company

The Gorman-Rupp Company is a leading manufacturer of pumps and pumping systems for the municipal, water, wastewater, sewage, industrial, construction, petroleum and OEM markets. Pumps include self-priming centrifugal, standard centrifugal, submersible, trash, priming assisted and rotary gear pumps. In addition, The Gorman-Rupp Company manufactures a complete line of packaged lift stations and booster stations, which include pumps, motors, controls, piping, accessories and enclosures. The company prides itself on manufacturing and delivering the right pump for the job.

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