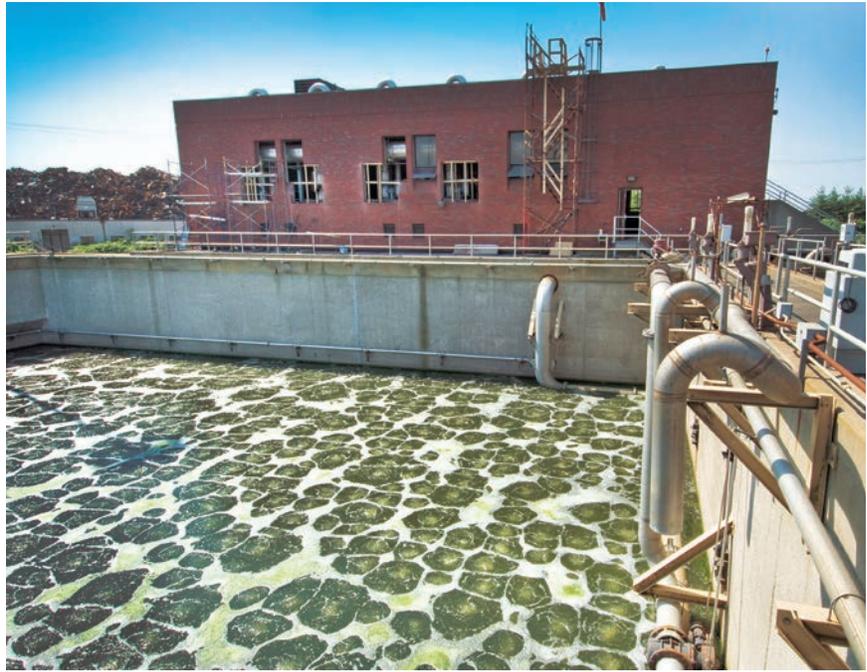


Narragansett Bay Commission's Field's Point Integrated Fixed-Film Activated Sludge System



Location: Providence, R.I.
 Owner: Narragansett
 Bay Commission
 Designer: Kleinfelder
 Contractors: Daniel O'Connell's
 Sons, Kruger
 Manufacturers: Kruger (Veolia);
 Flygt, a Xylem brand; DeZURIK Inc. /
 El-O-Matic; Hach; Hydro-Dyne
 Eng. Inc.; HSI/Atlas Copco;
 Bau Hopkins/Pulsafeeder
 Cost: \$31 million
 Size: 65 mgd



DeZURIK was proud to supply pneumatically
 operated AWWA Butterfly Valves as part
 of this project. For more information on
 DeZURIK products, visit www.dezurik.com.

In 2003, Narragansett Bay in
 Providence, R.I., experienced
 a fish kill that resulted in the
 death of more than one million
 fish. Following this event, the
 Narragansett Bay Commission (NBC)
 was required to upgrade its two waste-
 water treatment facilities to meet and
 exceed a newly imposed permit limit
 of 5 mg/L total nitrogen.

At the Field's Point facility, Rhode
 Island's largest sewage treatment plant,
 the commission selected a four-stage
 integrated fixed-film activated sludge
 (IFAS) floating media system—a tech-
 nology that, at the time, was primarily
 used in small- to mid-sized municipal
 wastewater treatment facilities.

Because of space constraints on
 the 22-acre site, NBC was unable
 to build additional treatment tanks.
 Instead, it decided to convert existing
 aeration tanks to enhance the IFAS
 technology, creating the largest IFAS
 system in the world. To achieve a sys-
 tem of this size, NBC evaluated 24
 treatment technologies.

During the design phase, the team
 had to consider the plant's adaptability

to northern climate temperatures; abil-
 ity to treat the highly variable flows of
 a combined sewage system; flexibility
 to alter the system if lower permits are
 issued in the future; and capacity to
 accommodate the flow from the exist-
 ing facility as well as future expansion.

During construction, each of the
 aeration tanks had to be individually
 converted to the IFAS system while
 remaining in compliance with exist-
 ing permit limits with significantly
 reduced aeration capacity. The system
 successfully remained in compliance
 throughout the process.

Since starting up in May 2014, the
 system has effectively reduced total
 nitrogen concentrations in the upper
 bay. The plant achieved a seasonal
 average of 3.4 mg/L total nitrogen
 in 2014—an 82% reduction from the
 2003 fish kill.

"The project is fully operational
 and exceeding our expectations," said
 Raymond J. Marshall, P.E., executive
 director of NBC. "The technology is
 always popular with visitors who tour
 the facility, and we are seeing healthier
 marine populations in the upper bay."

Brewery High-Strength Receiving Station & Force Main Project



Location: Stevens Point, Wis.
 Owners: City of Stevens Point,
 Stevens Point Brewery
 Designer: Donohue & Associates Inc.
 Contractors: Miron Construction
 Co. Inc., August Winter & Sons Inc.,
 Dakota Electric, LW Allen
 Manufacturers: Boerger, All-Flo
 Pump Co. LLC, Vaughan Co. Inc.,
 DeZURIK Inc., Water Technologies
 Cost: \$1.2 million
 Size: 2.9 mgd



DeZURIK was proud to supply Cast Iron Eccentric Plug Valves (PEC), Glass Lined Eccentric Plug Valves and Level Sensor Isolation Valves as part of this project. For more information on DeZURIK products, visit www.dezurik.com.

At the Stevens Point Brewery in Stevens Point, Wis., waste from the facility was being drained on the floor and hosed down the floor drain. This wastewater was fed to the city's wastewater treatment facility via the collection system, leading to high biochemical oxygen demand (BOD) in the influent stream. Because of the high BOD level, the treatment process became nutrient deficient, causing large outbreaks of filamentous bacteria in the facility's activated sludge process and, therefore, settling issues in the secondary clarifiers.

Taking action, the brewery now pumps its waste out of the fermentation tanks into an onsite lift station tank. After the material is in the tank, two air-operated diaphragm pumps send the material through a force main into an equalization tank at the wastewater treatment plant. When the material is in the tank, it is mixed with other trucked-in high-strength waste. The mixed material then slowly is fed into the facility's anaerobic digesters.

As the project was a public-private partnership, funding determinations had to be made, indicating which party would be financially responsible for each part of the project. Logistical challenges included determining how to handle the unique type of material

and range of volumes being pumped. By adding an extra pump at the brewery and installing variable-frequency drives on the mixing and feed pumps, the pumps could be sized to properly handle the expected flows. The tanks at both ends of the force main were designed with mixing systems to prevent the material from settling. The mixing allows the pumps to easily move the material, and also makes a homogenous feed stock for the anaerobic digesters.

After the project was completed, both parties experienced a reduction in operating costs. The brewery has saved on labor costs, while the city's electrical usage has decreased because of the reduced organic loading to the aeration system. No settling problems due to filamentous bacteria have been reported.

"We are very pleased with the completed project. It's great to see a project get this kind of support from both the utility as well as a utility customer. Both parties are already realizing significant benefits from the project," said Joel Lemke, director of the Department of Public Utilities and Transportation for the city of Stevens Point. "I think the really great part of this project is that it gives us both room to grow our operations much more cost-effectively. At the same time, we're doing great things with the resources at hand." 