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Branford, CT Case Story

Historic Town Remedies FOG Problem

Severe clogging issues were eliminated by new pumping equipment, but it took sophisticated controls to tame a fats, oil, and grease problem.

Branford, CT, was first settled in mid-1644 as part of the New Haven Colony and officially renamed in 1653 after the Town of Brentford, England. Branford owns and operates a Water Pollution Control Facility on Block Island Road. The facility collects sewage from about 100 miles of sewers and 50 pump stations in Branford, as well as sewage from a portion of North Branford.

Scope

Among the pump stations managed by Branford is a long-term problematic station located at Burban Street. There were two primary problems at this station: 1) clogging from modern day trash and raggy, stringy materials, and 2) fats, oils, and grease (FOG) from a nearby nursing home and restaurants, which accumulate and float on the water surface, resulting in a horrendous mess.

If town staff did not travel to the station weekly and clean it with a vacuum truck or fire hose, the FOG would congeal and become an even a bigger problem, requiring many additional labor hours to resolve. Town staff would spend at least one to two hours with one or two personnel every week at this site.

Solution

To solve these two nagging problems, pumping equipment at the Burban Street station was recently upgraded as part of a capital project, and Branford chose to use proven Flygt N technology pumps to eliminate clogging issues. Two Flygt NP 3171 HT model submersible pumps were installed, each capable of handling up to 1,300 gpm and 63 feet of total dynamic head. These pumps feature explosion proof 34-horsepower motors and high chrome impellers. The pumps are also more efficient than their predecessors, which will save Branford money by reducing energy costs.

Branford WWTP administrative building.

MultiSmart Control Panel simplifies control of Flygt N-Pump's advanced features.

Customer: Branford, CT
Challenge: Clogging and FOG
Solution: 2 Flygt NP 3171 HT
SCADA Monitoring & Controls

Clogging issues were quickly resolved with N-pump technology, which causes solid objects to slide along the tip of the impeller vane and out through a relief groove. However, FOG problems continued to plague the town, which then began evaluating different solutions to the problem, such as mechanical or bubble mixers, knowing all the while that new equipment may or may not have resolved the issue. The main concern was additional mechanical equipment in the basin that would also need to be maintained. The mechanical mixer required routine maintenance and the bubble mixers had a compressor that not only needed routine maintenance, it was also loud and required a heated enclosure.

At this juncture, Branford's local Flygt representative, GA Fleet Associates, approached the town with a possible solution and offered a demo option of a Flygt MultiSmart controller. Following initial discussions, a MultiSmart control panel with a Flygt PumpView3 SCADA system was quickly shipped to the site. Manufacturer's representatives and experts were on hand to support the town for the start-up of the controller and set up of the SCADA system.

Results

MultiSmart's wet well cleaning; pump reversal; flow metering, energy calculation, and pumping efficiency; and FOG ring avoiding functions were enabled and continuously monitored remotely by town personnel. Wet well cleaning is highly successful due to both the N impeller and pump reversal features that permit snore cycles to keep the wet well clean. Using phase and energy monitoring, Branford personnel are able to predictively monitor pump efficiency looking for changes that might require routine maintenance.

Wet well cleaning was operating every fifth cycle with alternating pumps and snoring. Pumping was continued an additional 30 seconds as the check valves of the pump station were 30 feet away and required this amount of time to ensure the FOG and any other floatable solids were completely pumped out of the station. Although it is not optimal to allow other pumps to snore, these new pumps are designed to run dry if needed because their closed loop cooling system prevents them from overheating.

The new pumps and controls have given Branford a complete solution for their pumping stations. Now, the town is interested in converting other problematic pump stations; and utilizing MultiSmart functions elsewhere, including phase monitoring to prove to the utility company that there are over and under voltage situations at times at other pump stations.

Winch hoisting pump in wetwell for inspection.

Maintenance crew is pleased with pump condition following six months of operation.

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