

Flygt Exuperior™ package in Warrenton, OR

Flygt N Pumps and SmartRun™ controls reduce operating costs in pump station upgrade

Warrenton, OR, is located in Clatsop County on the northwestern tip of the state. A small coastal community with a population of about 5,000 people, Warrenton is bordered by the Pacific Ocean on the west and the Columbia River to the north.

Scope

Warrenton's SW Alder pump station was rapidly reaching the end of its life. The station was equipped with two 10-hp pumps designed to generate 400 gpm at 34-foot total dynamic head feeding into a shared force main. But the pumps had difficulty meeting this requirement and often wound up running against shutoff head at the primary pump station. This situation is known as "deadheading," which occurs when required discharge pressure is higher than the pump can produce. Fluid is then recirculated within the pump, resulting in overheating and subsequent damage. By 2012, the city found it more cost effective to run a diesel backup pump at the station than to refurbish the existing dry mounted pumps.

During a high rain event, inflow and infiltration would cause the overburdened SW Alder station to operate continually for eight to ten hours, deadheading for most of that time. The potential for an overflow event made every storm a cause of concern for maintenance staff. In addition, a large food-oil-grease component that entered the station necessitated cleaning multiple times per week. The station's operating costs, based on power and maintenance records and cost allocation for labor, averaged \$22K annually.

Solution

The city decided to upgrade the wet well and controls in 2013. Following an RFP process, they selected Flygt – Portland's proposal containing key elements from the *Flygt Exuperior* package consisting of two NP3127 10-hp submersible pumps fitted with Hard-Iron™ N-impellers and 10-hp SmartRun controls.



The Warrenton SW Alder wet well pre-upgrade



The wet well with two Flygt submersible pumps and TOP 150 insert

END USER: The City of Warrenton, OR
CLIENT: Warrenton, OR
ORDER DATE: 2013
COMPLETION: 2013

The *Flygt Exuperior* package can combine N-technology and its adaptive functionality, a range of motors options and SmartRun – the all-new intelligent controls. Our modular product range ensures that *Flygt Exuperior* can be customized and tailor made for specific needs. The N impellers are self-cleaning, which improves their efficiency and reduces power usage. Hard-Iron™ is a high-strength cast iron alloy comprised of 25% chromium which is highly resistant to abrasive wear, erosion and corrosion. This can be critical in applications susceptible to wear due to sands and other abrasive particles. SmartRun controls provide variable speed pumping, optimized to achieve energy savings and maximum cleaning within wastewater pumping stations.

To control grease and solids in the wet well, Jim Rankin of JB Rankin Engineering, the city's engineer for the project, recommended installing a Flygt TOP 150 fiberglass insert in the existing pump station. The TOP 150 insert is a pre-engineered and factory-built fiberglass insert with a unique hopper shaped bottom for existing concrete pump stations designed to pump wastewater or storm water in municipal sewage systems, commercial facilities, and other applications where the removal of solids and scum is a priority.

Power consumption has been reduced by 28% percent with vastly shorter run times, and damage due to operating near shutoff is a thing of the past.

Result

Once a high maintenance station with aging infrastructure, reliability issues, and peak loading concerns, SW Alder is now a model of efficiency and reliability.

City staff has been able to reduce pump station cleaning to either monthly or bi-monthly routines without the need to add degreaser, which was required prior to the upgrade. In its first year, the station will have cost \$6,300 in operating expenses, saving the city \$15,607 from the original pre-rebuild operating costs.

With the inclusion of a Flygt TotalCare gold care and maintenance program, the city could effectively redirect almost \$13,000 annually toward other asset management requirements, and the greater reliability in operation will further reduce overtime expenditures. In addition, with significant reduction in electrical power used, the city is able to meet the community's current energy consumption and environmental impact expectations.



View of the 10-hp SmartRun controls

Xylem, Inc.
14125 South Bridge Circle
Charlotte, NC 28273
Tel 704.409.9700
Fax 704.295.9080
www.xyleminc.com

Flygt is a trademark of Xylem Inc. or one of its subsidiaries.
© 2014 Xylem, Inc. JUL 2014



www.youtube.com/flygtus