

# Wastewater Treatment in Martha's Vineyard, MA

Flygt N-Pump Solves Clogging Problems for New Hospital Facility

The Oak Bluffs wastewater utility in Martha's Vineyard has a modest 600 connections, including restaurants, lodgings, shops and homes. The .375-MGD Siemens Water Technologies (formerly US Filter) SBR plant entered service six years ago and is equipped with UV disinfection.

## Project or Scope

Until recently, the Oak Bluffs plant served primarily the commercial businesses and in-town residences that either lacked adequate sites for a septic system or where soils were ill suited for the alternative. The local hospital operated a 50-year-old standalone package plant to treat its wastewater. But when the hospital began work on a \$44 million replacement facility, it elected to connect to the Oak Bluffs utility to treat its .02 to .03 MGD wastewater stream.

**"Hospital wastewater often carries improperly disposed hand towels, bandages and other medical waste flushed into the system."**

Early in the planning, it became evident that the new lift station being designed for the hospital had to have the ability to overcome the chronic clogging that plagued the lift station that previously served the hospital. Scholfield, Barbini & Hoehn, Inc., the designers in charge of the project, initially considered installing a grinder pump with screening at the new lift station. But when they couldn't get the needed head capacity, they had to search for an alternative solution.



**END USER:** Oak Bluffs Wastewater Treatment Plant  
**CLIENT:** Scholfield, Barbini & Hoehn, Inc.  
**ORDER DATE:** TBD  
**COMPLETION:** 2007

## Solution

To combat the twice weekly clogging situations experienced at the old lift station, the designers turned to an award-winning pump technology developed by Flygt. The “N-Pump” technology had proven results, saving energy and money at scores of installations around the globe.

More importantly for the Oak Bluffs facility, the self-cleaning N-Pumps were known to make clogging and breakdowns all but obsolete, thus increasing productivity. The energy-efficient pump units feature a volute with the self-cleaning impeller. A stationary relief groove in the volute clears the semi-open impeller of all debris so that it can be carried away through the pump. The patented engineering achievement virtually eliminates built-up debris that induces clogging.

Existing installations had proved the N-Pump is inherently more reliable than a traditional chopper pump. Those pumps may be able to grind rags and other debris into pieces small enough to pass through lift stations, but they are resistant to rocks, wood or other hard foreign materials. In addition, the material they do shred sometimes causes problems at the downline treatment plant unless the plant has screens at the headworks to capture it. For the new hospital project on Martha’s Vineyard, the N-Pump was a much more efficient and effective alternative.

**“The N-Pump is more reliable than a traditional chopper pump, virtually eliminating clogging issues.”**

## Result

Designers sized the new hospital lift station to serve present and future flows, as well as that from potential medical office development nearby. They specified the 35-HP Flygt Model NP 3171 pump unit using design points of 80 to 115 GPM. The long force main served by the new station required 240 TDH at 100 GPM. Despite the challenging low-flow, high-head conditions experienced since becoming operational in May ('07), the installation has performed so well, the N-Pump is a likely candidate for a similar lift station project at the regional high school which is under order to abandon its on-site treatment plant.

The new hospital lift station has tested the waters of advanced pump technology and cured the clogging problem that plagued the abandoned lift station. The designers state they have not heard of a single clog issue since the station came online. The Oak Bluffs wastewater utility facilities manager is equally impressed.



Hospital discharge from blue pipe is transferred to WWTP by two pumps.

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