

# Don't get hot and bothered – get N-pumps!

Rotorua pumping station, New Zealand

Frequent blockages and the challenges associated with high temperature geothermal environments prompted the Rotorua pumping station in New Zealand to install new Flygt N-pumps and bring an end to the costly maintenance they had experienced in the years prior.

Until the switch was made, process technician John Heald couldn't rely on his pumps. To limit the risk of overflows in his fifty-two stations, it was decided to test two Flygt 3153 N-pumps. John and his team immediately experienced a remarkable decrease in the number of blockages thanks to the new, robust N-pumps. In addition to this, the N-pumps proved to be extremely reliable, in spite of 60°C water temperatures throughout the area.

## The background

In 1992, conventional channel impeller type sewage pumps had been installed at the Ohinemutu pumping station in Rotorua, New Zealand. However, it soon became evident that the new pumps were struggling to meet the extreme demands of the geothermal waters of the local landscape.

Not only were high temperature waters adding to the challenge but the operations staff was being called out day and night due to frequent blockages from rags and clothing. A strainer basket was installed in the wet well to catch rags and foreign objects which were blocking the pump, but the basket filled quickly and was too difficult to lift out of the wet well through narrow access hatches when full. The next idea was to construct a manhole in-line to the pump station with a removable strainer basket, which the staff removed twice a week. This was a better alternative but still very labor intensive and not the way an efficient pumping station should function. The Rotorua pumping station was in drier need of a more radical solution. They simply needed a pump that could handle the high temperatures of their waters and maintain flow without clogging every time a foreign object was introduced to the system. The Rotorua station needed a super pump. Thankfully, advancements in Flygt pump technologies would soon answer their requests.



## The solution

When an Flygt engineer visited the Rotorua station in 2001, sewage network technician John Heald was desperate for a solution to the sewage pump station's problems. After a short investigation of the station's pump specifications in comparison to the demands of the station, the Flygt engineer revealed that the single vane channel impeller pumps being used were inappropriate for their needs.

At this point in time, the Flygt New Generation N-pumps were still in their infancy and had only been presented to Flygt sales companies. However the Flygt engineer assigned to the Rotorua pumping station believed that the new N-pumps could solve the problems occurring at this pumping station once and for all. He presented the new N-pumps to the Rotorua staff and it was soon decided that the problematic pumping station in rural New Zealand would be the first location to benefit from the powerful pumping capabilities of Flygt New Generation N-pumps.

The Flygt N-pumps were the perfect answer to the problems being experienced at the Rotorua pump station. The revolutionary "N" technique with blockage resistance and high hydraulic efficiency was ideal for the station's conditions. The days of emptying strainer buckets were over for the pump station staff. Everyone was relieved to know that they would finally be able to depend on their pumps. In addition to this, the N-pumps also feature a closed internal cooling system for keeping the motor temperature lower.

The Rotorua pumping station had decided to try the first New Generation "N" pumps in their sewage network and soon after, the new pumps were being installed.

## Results

The results have been remarkable. The inline strainer basket has been removed and the N-pumps are sending the rags on to the head works at the wastewater treatment plant without blockage. Prior to the installation of the new N-pumps, two men and a truck were dispatched several times a week at an estimated cost of \$300 per call. Now the mechanical reliability has improved remarkably, maintenance costs have been slashed and energy savings have been recorded due to shorter run hours and improved electrical and hydraulic efficiency.



The problems caused by high temperatures were minimized after changing to reliable Flygt N-pumps.



"Because of the improved mechanical and electrical efficiency, and amazing resistance to blockage, the new generation Flygt pumps with "N" technology will revolutionize the capabilities of all 200 sewage pumps throughout the Rotorua region."

John Heald  
RDC Network technician

### Technical specifications

Pump: ..... Flygt NP 3153  
Power: ..... 11 kW  
Application: ..... Wastewater pump station  
Flow: ..... 40,7 l/s  
Head: ..... 11,1 m  
Variable frequency drive: ..... Technovar HV3.37

