

The Kingston West Wastewater Treatment Plant Bypasses

Two bypasses totalling an average flow of 62,300 cubic meters a day

Water.

Nature's most precious life-giving and life-sustaining substance is everywhere and it's our responsibility to manage it properly.

We have learned much about water treatment over the years. One key lesson is that the drinking and wastewater infrastructure upon which our communities have been built is vulnerable to deterioration. Upgrades incorporating the latest technologies are essential if we are to keep our water infrastructure strong and healthy.

The City of Kingston, Ontario should be commended for doing exactly that. The fresh-water sailing capital of North America, Kingston is a major port for scenic cruises of the breathtaking Thousand Islands. But like other cities across Canada and the United States, Kingston's water infrastructure needs upgrading.



A case in point is the Kingston West Sewage Treatment Plant. This facility serves a population of 44,000 plus nearby industrial plants. Although still functioning properly, the sewage treatment plant at Kingston West was starting to show its age and lacked capacity for the demands of an increasing population. An upgrade was in order.

But first the city had to work out a plan for dealing with the incoming effluent during the reconstruction process. At an average flow of 36,300 cubic meters a day, and a peak flow of 77,200 cubic meters a day, this was no simple task.

Above all, during the upgrade, day to day operations at the treatment plant had to be maintained.

The Plan:

Ivan Morse, Flygt's Customer Support Director determined that two separate bypasses were needed to direct the incoming flow to temporary locations. The first bypass would require pumping from a manhole opening measuring a mere 600mm square. Because submersible pumps were too large for the manhole shaft, the Flygt team specified three Thompson 8JSC turbocharged diesel suction pumps: two pumps for handling the peak flows, and one pump as mandatory emergency backup.

Operation of the lead pump was continuous while the secondary and backup pumps incorporated automatic stop / start systems, with floats for unattended operation. The complete solution also comprised the necessary piping and accessories, including backup generators.

The Second Bypass:

For the second phase of the project at the Pumping Station, the Flygt team relied on the submersible concept. Here three submersible NS 3300, 75hp Flygt pumps were specified, which handled an average flow of 26,000 cubic meters a day, and a peak flow of 56,000 cubic meters a day.

As in the earlier bypass phase, Flygt also supplied the CS 3305 standby pump the backup generators, as well as engineered and supplied the piping systems, valves and electrical controls required for the project. Even the installation of 265 meters of 12 inch HDPE piping used for bypassing areas under construction was carried out under Flygt's supervision.

The Results:

Flygt's bypass designs adapted very well to any variations in effluent inflow, enabling the treatment plant upgrade to be undertaken without any disturbance or down time.

The Kingston West project is but one example of how well above-ground and submersible pumping technologies can be utilized and combined to achieve a desired result. It also shows that Thompson self-priming suction pumps and Flygt submersibles are a winning combination to say the least.

The bypass was handled by ITT Flygt's Ottawa office, and what could have been a very difficult project turned out working just fine. Joe Lewis, the Treatment Plant Manager is pleased with the results and with the fact the Plant is back to its normal operations.

The Kingston West Treatment Plant upgrade is a good example of how ITT Flygt can provide total water-handling solutions, whether it be for Bypasses, Wastewater or Dewatering project.

We can now say with pride:
ITT Flygt – For all your water handling needs!



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