
VAUGHAN CASE STUDY

Kelowna, B.C. Gyro Pump Station

Case Study Date: April 2021

Contact Information: Waste'n
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Customer: City of Kelowna,
BC, Gyro Pump Station

The Previous Equipment:

The old, non-clog pumps tended to plug or clog on rags as the Variable Frequency Drives (VFDs) slowed the pumps at times of lower station inflow rates. Once one pump plugged, pump flow fell, causing more pumps to turn on to keep up with inflow rates. This next pump eventually was also slowed by the VFD, and under this slowed condition a



second pump would generally also plug, compounding the problem. There were many circumstances where all three station pumps were plugged during a critical condition in this pump station.

The Problem:

On average, the old pumps were removed from the pump station for unplugging and cleaning three times per week with three staff members required and a crane truck required each event.

Cost to resolve each plugging event: 3 operators x 2 hours x \$40/hr = \$240/event labor costs. The cost of the crane truck was \$150 for each event. Total cost: \$390/event. With 3 plugging events/week, cost was 3 x \$390 = \$1170/week. With 52 weeks/year x \$1170 cost/week = **\$60,840 CAD/year cost** to maintain the old pumps. In US dollars at 2021 exchange rate → \$60,840/1.25 = \$48,672.

The Solution:

The City of Kelowna purchased one 60 HP, 1180-RPM model SE8N4-132 submersible Vaughan chopper pump in September 2009, 12 years ago as of the date of this case study, to see how this pump would work alongside the older pumps. The rated performance was 2000 US GPM at 54.5 ft TDH. A second Vaughan pump was purchased in May 2011 and a third in November 2015. The Vaughan pumps reused the original guiderail system so that the changeout of the pumps was fast and simple, with no rework required.

Brad Stuart from Kelowna Ops noted: "No pump servicing has been required for cleaning (unplugging) of the Vaughan chopper pumps. The only pump servicing has been related to inspections at appropriate routine maintenance service intervals."

The Results:

The first Vaughan SE8N chopper pump was installed in late 2009. Routine plugging problems in the pump station have been eliminated since that time. At an annual cost of over \$60,000 CDN per year, the payback is well under one year.