

City of Toronto Process Control System (PCS)

The City of Toronto water supply system consists of four treatment plants and a transmission system. The system serves a population of approximately 2,900,000, of which 2,400,000 are in the City of Toronto and 500,000 are in the Region of York. The City of Toronto service area is about 630 square kilometres. The City of Toronto water transmission system is a large complex integrated system consisting of pumping stations, floating storage reservoirs and tanks, and metering and valve chambers.

The water system is divided into six pressure zones, which are further divided into fourteen pressure districts.

Water is pumped through a hierarchy of pressure districts with elevated storage facilities (reservoirs and tanks).



Automation

The project was concerned with the design and implementation of a new Process Control System for the Water Transmission System.

The overall system has over 100 remote locations with PLCs, 12 SCADA servers and a number of view nodes. All remote control and monitoring of City of Toronto facilities are performed from one central location (Transmission Control Centre), with a secondary/standby system at another location.

Design and software standards were developed and detailed QA/testing procedures were followed to ensure system functionality, performance and quality before actual start-up and commissioning. New control methods were developed for certain parameters that had been manual controlled previously.

The fully integrated system included energy management features and innovative graphical interface. The system was designed to interface with a system optimizer.

