

## **How Guelph Water Services used the UK's Water Industry Telemetry Protocol (DNP3-WITS) to remotely manage and collect data from its DMA Flowmeters**

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**Short Abstract (50 words)**

In 2016, Guelph Water Services upgraded its district meter area (DMA) flowmeters in its distribution system. Included in the upgrade was a new wireless telemetry system based on the UK's Water Industry Telemetry Standard (DNP3-WITS) to gather/log flowmeter data. This paper will focus on the many benefits of DNP3-WITS protocol – including both automatic store/forward data-logging and remote configuration management – which makes DNP3-WITS well-suited for both SCADA and remote telemetry applications.

**Long Abstract (250 words)**

In 2016, City of Guelph Water Services, a drinking water utility with a service population of 120 000, embarked on a project to upgrade and expand the district metered areas (DMA) in its distribution system. Started in 2013, the DMAs are created by closing specific street valves, so water usage in the DMAs can be monitored by 2 or 3 flowmeters installed on the inlets to each DMA. Guelph selected a DMA metering system that uses magnetic flowmeters installed into valve chambers located throughout this city. Each flow meter is accompanied with a flush-to-the-ground boulevard box which contains a battery powered transmitter, complete with a built-in data-logger and cellular data modem.

The topic of this paper is the new DMA flowmeter telemetry system that was deployed as part of the 2016 upgrade. Based on the UK's Water Industry Telemetry Standard (DNP3-WITS), the new telemetry system now allows the city to remotely manage the configuration of its DMA flowmeters and easily gather/store DMA flowmeter data into its SCADA system. The DNP3-WITS system also provides data for the city's hydraulic model.

The DNP3-WITS protocol is an industry-standard protocol that has been developed by water utilities in the UK who wanted a telemetry protocol that is tailored to the needs of the water industry ([www.witsprotocol.org](http://www.witsprotocol.org)). Features of DNP3-WITS include remote configuration management of flowmeters and other instrumentation, ability to remotely manage RTU/PLC configurations, automatic store/forward data-logging built right into the protocol, detailed telemetry diagnostics, and automatic calculation of min/max/average/totals for process values.

The presentation will provide an overview of Guelph's DMA flowmeter system, a review of the flowmeters used, how the DNP3-WITS telemetry system was deployed, and an introduction to the many technical benefits of using the DNP3-WITS protocol.

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