

UV Pure® Case Study	
Application:	Municipal/Institutional Projects
Solution:	UV Pure®'s NSF/ANSI 55 Class A certified Hallett® systems
Location:	Baltimore, ON



Pure, safe water.
Always.

Small municipality water treatment using UV technology

In 2002, Baltimore, a town in southeastern Ontario of approximately 300 homes, had a Trihalomethane (THM) problem in their water. Environmental engineering firm Gamsby and Mannerow (G&M) were retained to design and install a new water treatment system.

Hallett® Systems Operational Parameters

	Min	Max
Hardness	0	50 Grain (855 mg/L)
Iron	0	3 mg/L
Manganese	0	0.5 mg/L
% UV Transmittance	75%	100%
pH	6.00	9.00
TDS	0	1000 mg/L
Water Temperature	34° F	100° F
Air Temperature	45° F	100° F
Turbidity	0 NTU	1NTU
Water Pressure	5 PSI	100 PSI



High THMs in Baltimore's Water

Trihalomethanes (THMs) are toxic chemicals formed when chlorine or other disinfectants in drinking water react with naturally occurring organic matter. Baltimore had high levels of organic material and therefore needed to find an alternative to breakpoint chlorination. G&M recommended a multiple barrier system using ultraviolet (UV) purification for primary disinfection and then specified UV Pure®'s Hallett® systems to overcome the town's pre-treatment characteristics.

Reasons why Hallett® systems were selected for Baltimore's UV treatment

1. High levels of organic carbons and colour exist in most natural water and this results in low UV transmittance (UVT), as was the case in Baltimore. UV Pure®'s NSF/ANSI 55 Class A certified Hallett® systems are certified at 70% UVT, whereas conventional non-NSF UV systems typically make performance claims for 95% UVT, which is much like distilled water. UV systems requiring 95% UVT need additional pre-filtration systems prior to the UV purification stage, which translates to a significant added cost and maintenance burden for the township. For more information on UVT please read UV Pure®'s May online newsletter.
2. Water hardness, caused by dissolved calcium and magnesium in the water, leads to a highly problematic build-up in conventional UV systems since these systems must be shut down, emptied, cleaned and reassembled frequently. In contrast, UV Pure®'s patented wiper blade system is automatically and continuously selfcleaning, even in extreme hard-water applications.
3. Hallett®s can be scaled as capacity requirements change. These scalable, small systems also allow for system redundancy WITHOUT the 100% system replication and cost-doubling of conventional UV systems.

Results: Baltimore's system commissioned in 2003 and added 20% more capacity in 2006

The Hallett® system's reliability and maintenance-free operation prompted G&M to specify additional capacity for Baltimore's system. In 2003, Baltimore's 680 L/min flow capacity requirement was achieved using six Hallett® 30s (H30s with 30 gpm flow rate) operating in parallel with a common header. An additional H30 was installed for system redundancy. For enhanced simplicity and operational ease, G&M ran all seven units concurrently and added a PLC monitor for alarming. The township added another two units to the system in 2006, making a total of nine.

UV Pure® Technologies Inc. develops and manufactures technologically advanced ultraviolet drinking and waste water systems built with their proprietary self-cleaning, self-monitoring and fail-safe Crossfire Technology. www.uvpure.com

To find our more about UV Pure products and Crossfire Technology, visit www.uvpure.com, or email us at info@uvpure.com.