

System Name: Southampton WTP
Municipality: Town of Saugeen Shores
Drinking Water System Category: Large Municipal Residential – Type A System

Located in Bruce County in the Saugeen Valley Source Protection Area, Saugeen Shores has a mix of urban and rural characteristics. The Town of Saugeen Shores is located on the easterly shores of Lake Huron. In 2011, the population was 12,661, which was an increase of 8% from 2006. Seasonal residents add to the population during peak seasons. The main towns are Port Elgin (population 6445) and Southampton (population 3075). Smaller villages include Burgoyne, Dunblane and North Bruce.

Since 2008, the Town of Saugeen Shores has operated a single municipal water system that supplies water to the residents of Southampton and Port Elgin. Saugeen Shores now operates two intakes: a new main intake that was activated in 2008, and the old intake that is maintained as backup and for emergencies. Both intakes and the Water Treatment Plant are located in Southampton. They take water from Lake Huron, which makes this a Great Lakes (Type A) system. It serves approximately 5270 users and is classified as a large municipal residential system under Ontario Regulation 170/03.

The Southampton WTP was upgraded in 2007 to meet average (6889m³/day) and maximum (14,250m³/day) water demands (Saugeen Shores 2009). The former Port Elgin WTP was decommissioned in October 2008. The Southampton WTP is located at 140 Island Street approximately 50 m inland. The pumping station is located east of the beach at the end of Bay Street in Southampton. The current WTP was constructed in 1990, with upgrades in 1992, 1993 and 2006 (Stantec 2009, Phase 1 Technical Addendum).

The Southampton WTP is a Class 3 WTP with a Class 2 distribution system. The pumping station consists of a raw water well and a heated structure that houses pumping, treatment and control facilities, including three vertical turbine pumps, two self-cleaning strainers with a 1.5m³ strainer backwash wastewater storage tank, two metering pumps each rated at 20L/hr, a chlorine solution feed line for zebra mussel control, and a 230kW diesel engine standby power generator and associated equipment.

The membrane filtration system is comprised of four individual submerged membrane trains, five permeate pumps, two back pulse pumps, two clean-in-place membrane wash pumps, two vacuum pumps, two oil-free compressors, two air blowers, and feed systems for sodium hypochlorite, citric acid, sodium bisulphate, and sodium hydroxide. The treatment system is comprised of a flocculator/clarifier, two equalization tanks, alum feed system, a neutralization tank, two decant chambers, and a sodium bisulphate feed system. There are two clear wells with a total storage volume of 3720m³, two sets of three high lift pumps, a sodium hypochlorite disinfection system, and a 750kW diesel standby power generator (Stantec 2008, Phase 1 Report).

During upgrades at the Southampton WTP, a new intake structure was constructed. This intake is located approximately 895m in length with a depth of the intake crib of 7.5m and a lake depth of 10.1m (Stantec, 2009). The backup intake is maintained and ready to supply treated water in an emergency. It also draws water for the Southampton WTP is a 600mm diameter concrete pipe approximately 355m in length, and has a depth of 3.4m (MOE, 2005). The intake crib is wooden with a flat sealed top at the end of the pipe for protection. A 38mm diameter high-density polyethylene chlorine solution feed line is located inside the intake pipe and provides chlorination for zebra mussel control (MOE, 2006c). A total residual analyzer located within the low lift pumping station monitors chlorination levels for zebra mussel control (MOE, 2005). Regular water testing continues (Saugeen Shores 2009).



Southampton Intake



Wastewater treatment facility



Southampton Standpipe