Surface Water Treatment Process

Barrie

1 Intake

Surface water is drawn from an intake structure in Kempenfelt Bay nearly 1 km from shore and 26 m deep. The water is gravity fed to a low-lift pumping station close to the shoreline where it is directed through screens to remove large debris and particles Chlorination is used seasonally at the intake structure for mussel control.

2 Pumping

Water is pumped from the low lift pumping station to the Surface Water Treatment Plant.

3 Membrane Strainers

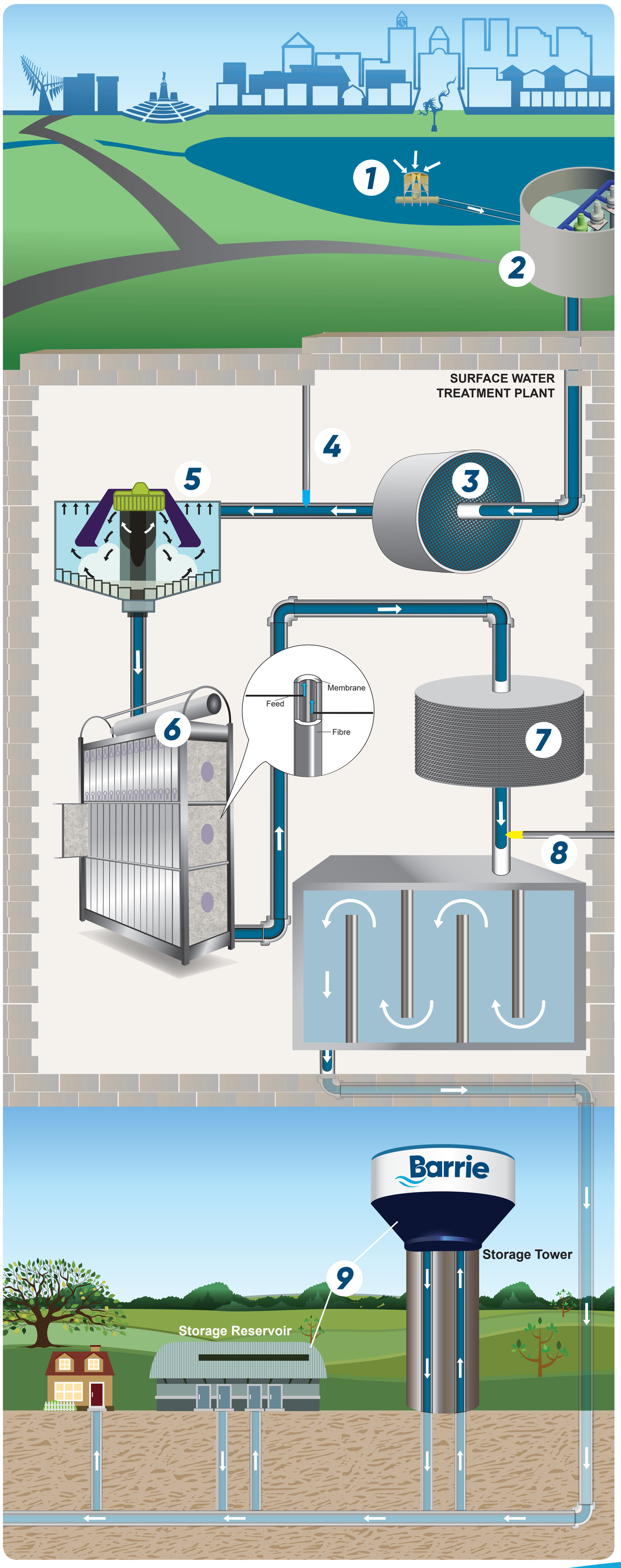
The water goes through pressurized strainers to remove particles larger than 0.5 mm in size; approximately the size of sand particles. This stage is important to prevent damage to the membrane fibers.

4 Coagulation

The first chemical process used to treat the water involves adding a coagulant. A coagulant triggers dissolved and suspended particles to clump together.

5 Flocculation

The water then goes through a physical process of gentle mixing, allowing smaller particles to collide and slowly form larger particles called floc. This floc remains suspended while moving through the tank.



6 Membrane Filtration

The water is then filtered through membrane fibres. Membrane fibres can be thought of as straws with hundreds of tiny holes which are a thousand times smaller than a human hair. This allows for clean water to be drawn through the fibres and all other particles, including the floc, to be left behind.

7 Activated Carbon Contactors

The filtered water is then directed to activated carbon contactors, where organic taste and odour compounds are adsorbed and removed.

8 Disinfection

The final step in the treatment process is disinfection. This involves the addition of chlorine to the water allowing it to move slowly through baffled tanks. This ensures that enough contact time has been provided to inactivate harmful pathogens.

9 Storage

After disinfection, the water is pumped to a water storage reservoir or tower for use by the community.

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