

Forum Notes: Municipalities, Public Health & Industry: Water Use & Impacts**Municipalities: Water Use**

- Municipalities & rural homes need water for household use, watering, businesses and manufacturing. But by using this water, municipalities also affect water quantity and quality for downstream water users and the river ecosystem.
- Rural residents are entitled to a limited amount of water without a license for household use.
- Towns and cities require water licenses to draw water from the Battle watershed. Of the 38 cities, towns and villages in the basin, only nine rely on surface water; the remainder use groundwater.
- It is expensive to supply water to towns and cities. For example, the Camrose spent \$900,000 last year to treat water to meet drinking water quality standards.
- Municipalities return most of the water they use to the river as sewage/wastewater. Some water is lost because of evaporation from sewage lagoons, leaks in the water system, and lawn and garden watering. Water that is not returned to the river is referred to *actual* water use.
- Water used by cities, towns and rural households accounts for less than 5% (or 4,000 decametres³/year) of the total *actual* water use (ground and surface) in the Battle River watershed. Of this 4 million m³/year, 65% is licensed water (ground and surface) used by towns and cities. 30% is unlicensed water (drawn mostly from wells) used in rural households. The remaining 5% is water imported from the Red Deer and North Saskatchewan rivers for Stettler and Viking.
- 111,000 people live in our watershed: 65% in the upper (western) part of the watershed and where the population is growing rapidly; 23% in the middle part of the watershed and declining; 12% in the lower (eastern) part of the watershed and growing.
- Population growth projections indicate that most communities in the Battle watershed will be able to support their population growth with their existing water license allocations. Camrose, Wetaskiwin and some of the smaller communities in the upper basin may need new water allocations within 15-30 years.
- These projections assume water management practices will remain the same. However, greater water efficiency and conservation may reduce future municipal water demands.

Municipalities: Impacts

- Although ~77% of water withdrawn by towns and cities is returned to the river, it is held in sewage lagoons for 6-12 months before release. This may affect on the river's hydrology and water availability for downstream users. Presently, these releases occur in October and April but municipalities may be able to time the release of water from their sewage lagoons to improve the health of the Battle River (e.g. by releasing together in the spring to help create flushing flows). Urban residents can lessen their impact by practicing water conservation, particularly in their yards.
- Wastewater discharged into the river from sewage lagoons contains nutrients, bacteria and chemicals picked up from households. Sewage lagoons remove most bacteria and nutrients from wastewater; however they do not treat many soluble chemicals and pharmaceuticals. Hundreds of new chemicals from pharmaceuticals, shampoos, soaps, anti-bacterial cleaners,

FORUM IV: MAY 2005

BATTLE RIVER WATER MANAGEMENT PLANNING

etc. enter our water systems every year. Use of biodegradable detergents, & non-toxic cleaners and toiletries, and proper disposal of chemicals and pharmaceuticals by residents can improve the quality of municipal wastewater.

- Rain and melt-water run-off from urban areas picks up pollutants from our lawns, roads and driveways (e.g fertilizers, herbicides, oil, grease, gasoline, dog droppings, etc.) before running into storm sewers. Some storm sewers drain directly into the Battle River. Other sewers empty into settling ponds or artificial wetlands before discharging into the river. Treating the storm water before discharging it into the river (e.g. using artificial wetlands) reduces pollutants entering the river. By reducing their use of garden chemicals, fixing leaking engines, and properly disposing of chemicals, paints, etc., residents can reduce pollution in the river.
- Municipalities also affect the Battle River through their land-use decisions. For example, land uses that damage wetlands or riparian areas will affect the river's water quality and hydrology.
- Maintaining water quality in the Battle River is important for public health. Water quality varies in the Battle River, and treating it to a safe drinking standard is expensive. Water-borne diseases are a health risk, and a variety of different approaches are needed to help protect water quality. The Regional Health Authority, under the guidance of the Public Health Act, is responsible for dealing with disease outbreaks.

Thermal Power : Water Use & Impacts:

- ATCO's Battle River power generating station has been operating since 1956. It generates 675 Megawatts of electricity.
- Although ATCO's water license allows it to divert 690,000 decametres³/year of water per year, the amount of water it *actually* uses (water lost to evaporation and not returned to the river) accounts for only 10,000 decametres³/year, or 21% of the total surface water use in the Battle River watershed. As with municipal water use, ATCO's water use affects the river's hydrology and water availability for downstream use. Discharges from ATCO's operations increase the temperature of the river.

Oilfield Injection: Water Use & Impacts:

- Last year, water used for oilfield injection accounted for 0.3% (or 153 decametres³/year) of all surface water actually used in the Battle River watershed and currently has a minimal impact on the Battle River's hydrology and water availability for downstream users.
- Use of water in oilfield in the Battle River watershed has dropped by 54% since 1999, and further declines of 2.5% per year are predicted as oil reservoirs are depleted.
- Cumulative effects of land clearing for oil and gas installations and other developments are affecting some areas of the Battle watershed.
- The Energy and Utilities Board (EUB) is an independent body responsible for ensuring fair and responsible development of oil and gas resources. The board is responsible for processing oil and gas development applications.

More information:

City of Camrose's Water System: <http://www.camrose.com/engineer/water/wtp1.htm>

Water Conservation Tips: <http://www3.gov.ab.ca/env/water/Conservation/residential.cfm>

Water use & oilfield injection: <http://www.waterforlife.gov.ab.ca/html/removed.html#report>