8. Planned Water Quality Projects

SOUTH PEEL WATER SUPPLY SYSTEM PROJECTS

LAKEVIEW WATER TREATMENT PLANT

Lakeview Water Treatment Plant Expansion

As a result of increased growth in the Mississauga, Brampton and Bolton areas and an agreement to supply water to a neighboring municipality, the Lakeview Water Treatment Plant (WTP), currently rated at 560 million litres per day with conventional treatment in place, will expand its daily treatment capacity to 920 million litres per day. When completed, the Lakeview WTP will have the world's largest ultra-filtration membrane operation, an ozone system and Biologically Active Carbon Contactors (BACC) designed for particulate filtration and removal of organic compounds for taste and odour control, while operating above the current provincial standards, and providing biologically stable water in the distribution system.

The expansion of the plant included construction of a new 25 million litre water storage reservoir and a High Lift Pumping Station with a total capacity of 745 million litres per day, and expansion of the existing Low Lift Pumping Station by 550 million litres per day.

The Lakeview WTP facility is being upgraded with the world's most advanced treatment technology, with the largest ultra-filtration membrane installation for drinking water in North America, offering the best protection against disease causing organisms while addressing the taste and odour concerns and generating higher water treatment capacity to ever changing and continuously developing Peel communities.

Pharmaceutical & Personal Care Products Study

In the recent years there has been an increasing concern about the presence of pharmaceutical and personal care products (PPCPs) entering the environment. These products are continuously being released into the environment by human daily activities, making their way into our waters mainly through domestic and sewage treatment plant discharges, storm water sewer outfalls and agricultural runoff.

Presence of the PPCPs in Canada, especially the drinking water has not been studied in great detail and only in the recent years received some more attention from the scientists and researchers. These compounds are not regulated in drinking water in North America.

In 2006, the Region of Peel has participated in a 'Survey and Assessment of Pharmaceuticals and Personal Care Products in Ontario Drinking Water Systems', a study initiated, funded and fully managed by the Ontario Ministry of the Environment. The Peel research study results will provide information on the presence of the PPCP compounds in the raw and drinking water at the Lakeview Water Treatment Plant and determine whether the current water treatment technologies effectively remove these compounds, which in turn would define any potential implications for drinking water in the Region and the province of Ontario.

LORNE PARK WATER TREATMENT PLANT

Lorne Park Water Treatment Plant

The Lorne Park plant, currently rated at 347 millilitres per day, delivers water to the western side of the South Peel distribution system. Plant expansion to a total net capacity of 500 million litres per day is planned for completion by 2009. It is planned to expand the existing processes to handle the higher flow rates, while a number of feasible technology alternatives are reviewed including membrane filtration, ozone, and Ultraviolet (UV) disinfection.

TASTE AND ODOUR RESEARCH

Peel residents whose source water is Lake Ontario are occasionally affected by taste and odour in their drinking water, caused by naturally occurring compounds, Geosmin and 2-methylisoborneol (MIB). Since 1999, under Ontario Water Works Research Consortium (OWWRC), an intensive study into the cause and control of taste and odour in drinking water has been undertaken by the National Water Research Institute and Ontario Ministry of the Environment with collaboration from area municipalities and local utilities. Intensive testing of Lake Ontario water during the taste and odour events confirmed that minute concentrations (measured in parts per trillion) of these compounds generate an earthy and musty taste and odour.

To control the taste and odour events in its drinking water supplies, the Region of Peel invested in granular activated carbon (GAC) technology at both Lakeview and Lorne Park Water Treatment Plants and while GAC was the preferred option for retrofitting the plants back in 1999, newer technologies currently implemented during the Lakeview WTP expansion will provide effective barriers against the taste and odour events.

The Region, one of many members of the research group, continued to contribute funding to the OWWRC in 2006. The taste and odour study program has, to date, included intensive research into both the inshore and offshore areas of Lake Ontario. It focused on the biological cause of taste and odour in the lake while providing a wealth of knowledge and support to the drinking water supply system owners. In 2006, the taste and odour research program was revised and switched to focus on the *Source Water Protection Research*, a program specifically designed to help address the expected future regulatory requirements related to source water as part of the Drinking Water Quality Management Standard and the Drinking Water Source Protection Act.

NORTH PEEL MUNICIPAL WELL UPGRADES

The Region of Peel owns and operates communal groundwater based systems in Alton, Caledon Village, Caledon East, Inglewood, Palgrave and Cheltenham. In 2003, the Region of Peel completed Groundwater Under the Direct Influence (GUDI) of surface water studies in response to new regulatory requirements from the Ministry of the Environment. In conjunction with the GUDI studies, the Region completed a preliminary design report in 2003 for the upgrades required to comply with the conditions stipulated in Ontario Regulation 170/03.

The Region of Peel retained Earth Tech Canada and Stantec Consulting Limited to coordinate the upgrade projects and the following lists the project scope for each community in the Town of Caledon.

Caledon East

- Upgrades to the groundwater system at Caledon East Well 2 pumphouse.
- Expansion of Caledon East Well 3 pumphouse with the installation of greensand filters for iron removal, ultra violet disinfection equipment and disinfection contact chambers.
- Installation of 150 mm diameter watermain within the Caledon Trails between the Caledon East Well 2 and Well 3 pumphouse.
- Expansion of Caledon East Well 4 pumphouse with the installation of greensand filters for iron removal and disinfection contact chambers.

Palgrave

- Construction of a new pumphouse at Palgrave Well 2 site including the upgrades to the existing groundwater system.
- Expansion of Palgrave Well 3 pumphouse with the installation of greensand filters for iron removal and disinfection contact chambers.
- Installation of 200 mm diameter watermain along Mount Hope Road between the Palgrave Well 2 and Well 3 pumphouse.

Inglewood

- Expansion of Inglewood Well 3 pumphouse with the installation of greensand filters for iron removal.
- Inglewood Well 2 pumphouse was modified with the installation of a member filtration system in 2004 to meet regulatory requirements for drinking water.

Alton

- Installation of ultra violet disinfection equipment and disinfection contact chambers at Alton Well 3 and 4 pumphouse.
- Installation of 300 mm diameter watermain along Beechgrove Sideroad and Main Street connecting the Alton system with Caledon Village.
- Installation of watermain along Station and Cardwell Street as part of a local improvement program.

Caledon Village

- Expansion of Caledon Village Well 3 pumphouse with the installation of ultra violet disinfection equipment and disinfection contact chamber.
- Expansion of Caledon Village Well 4 pumphouse with the installation of greensand filters for iron removal, ultra violet disinfection equipment and disinfection contact chambers.
- Installation of 300 mm diameter watermain along Beechgrove Sideroad and Main Street connecting the Alton system with Caledon Village.