

NEWSLETTER

Issue 3

January 2011

MUNICIPAL/PROVINCIAL JOINT ADVISORY GROUP ON WATER & WASTEWATER MANAGEMENT IN NOVA SCOTIA

Provincial Water Strategy Launched

The vision of the Nova Scotia Museum of Natural History is “to interpret the natural world to its visitors and inspire them to perceive the part it plays in their every day lives.” - an ideal location for the province to officially launch “**Water for Life: Nova Scotia’s Water Resource Management Strategy**”. Water is essential for life—this strategy provides a road map for water management in Nova Scotia over the next 10 years and beyond. Development of the Strategy was a commitment made by the government in 2007 under the Environmental Goals and Sustainability Act.

Strategy Coordinator, Jessica Paterson McDonald with Nova Scotia Environment (NSE), emphasized the need for the strategy to reflect the concerns and ideas of Nova Scotians when she spoke about the extensive stakeholder consultation sessions held over a 3-year period. Based on *what was heard*, the strategy outlines 29 actions to be achieved in the next 10 years.

Environment Minister, Sterling Belliveau said “Nova Scotians care about their water and want to make sure it is protected. They know that water is not an unlimited resource. This water



Jessica Paterson McDonald, discusses the strategy with launch attendees.

strategy will guide us in the management of water for the benefit of communities, businesses, industries, First Nations and individuals. It ensures that we’re staying on our path to sustainable prosperity.”

A core commitment of the strategy is the principle of ‘Integrated Water Management’ which encompasses 3 areas of action:

1. Understanding the quality and quantity of our water;
2. Protecting our water; and
3. Engage in caring for our water.

A Nova Scotia Water Advisory Group will be established to work in partnership with government and advise on the implementation of Integrated Water Management and the strategy.

The first project under the water strategy is the watershed assessment program. The Hydrologic Systems Research Group at Dalhousie University has been awarded a \$19,000 grant to collect information on Nova Scotia’s major watersheds and create a tool to assess the state of the watersheds in Nova Scotia.

For more information online:
www.gov.ns.ca/nse/water.strategy/

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MIP JAG—Discussion Points:

- **Water Charter developed by the Council of the Federation (Premiers)**
- **MWWE—linkage to new draft regulations under the federal Fisheries Act; clarification regarding ammonia**
- **Addressing ‘skill and knowledge’ gap—proposed water and wastewater workshop for municipal elected officials being considered— September 15th in Truro.**

Tatamagouche Facility Wins Award

Municipality of the County of Colchester

The **Municipality of the County of Colchester** has some more bragging rights for a rural water treatment facility. The application of innovative technology designed and built into the Tatamagouche Water Treatment Plant (WTP) recently earned national recognition from the Association of Consulting Engineering Companies (ACEC) for the design engineering firm. CBCL Limited received the **2010 ACEC Canadian Consulting Engineering Award of Excellence in Water Resources and Energy Production**.

The award was accepted by Michael R. MacDonald, CBCL Limited President and CEO, at a ceremony at the Fairmont Chateau Laurier Hotel in Ottawa. In his acceptance speech, MacDonald talked about the pride he has for accomplishments of the firm and its employees for the high level of technical ability and experience the firm has achieved in recent years.

Back in October 2009, the



water with a minimum use of chemicals. The treatment plant was constructed two years ago using the cutting edge technology.

The treatment facility produces extremely high quality potable water from the French River without the use of chemicals—a quality that the Municipality is very proud of given the fact that the raw water quality of the river is highly variable due to weather and seasonal changes.

The updated Nova Scotia water treatment standards now address the use of membrane filtration technology as it has become more common in recent years. The standard requires minimum provision for membrane use, including the management of waste streams generated by these types of facilities.

The Tatamagouche facility is a great example of the use of innovative technology in the delivery of clean, safe drinking water to those served by the system.

facility was also recognized as **Project of the Year** by the Atlantic Canada Water and Wastewater Association (ACWWA).

The water treatment process uses two stages of membrane filtration in series: 'ultra-filtration' followed by 'nano-filtration'. The process capitalizes on the benefits of each technology separately, and combines them for an optimal water treatment process that assures complete removal of turbidity and organic matter. The process uses no coagulation or chemical pre-treatment and the residuals are returned to the sources water.

Early on in the process, the Municipality reviewed various options and moved forward based on producing the best quality



In the photo with the award are (L-R): CBCL Limited Process Engineer Michael Chalk, M.A.Sc., Vice President Infrastructure Services Andrew Gates, P.Eng., and President and CEO Michael MacDonald, M.Sc., P.Eng.

Facility Profile—Pottle Lake Water Treatment (CBRM)

Membrane Technology Delivers High Quality Drinking Water



Cape Breton Regional Municipality (CBRM) continues to illustrate their commitment to water quality with the commissioning of the Pottle Lake Water Treatment facility.



Aerial view of the treatment facility shows location in a residential area.

More than 17,600 water users in CBRM's Northside communities including North Sydney, Sydney Mines, Bras d'Or, Florence, Little Bras d'Or, Point Aconi, Alder Point, Mill Creek, Little Pond, Upper North Sydney, Georges River, Balls Creek and Leitches Creek, are now supplied with high quality drinking water from the new 'ultra-filtration' (UF) membrane treatment facility.

Raw water from the lake

flows by gravity through a 600 mm (24") diameter intake pipe, then passes through a 6 mm (0.25") screen to remove debris prior to treatment. The water is then pumped through the facility from the low lift pump station.

All waters, especially surface waters, contain both dissolved and suspended particles. Coagulation and flocculation processes are used to separate the suspended portion from the water. Treatment at the Pottle Lake facility begins with the addition of a coagulant chemical—polyaluminum chloride—in a rapid mix tank to prepare the suspended particles to form a floc (particles bonding together). The water then passes through two flocculation tanks where the floc is formed making it easier for removal.

UF is a two-stage filtration system consisting of primary and secondary filtration. The secondary filtration stage is dedicated to processing reject water from the primary stage.

Filtered water from the primary is directed to the chlorine contact chamber. Reject water from the primary filtration stage flow by gravity to an

equalization (EQ) tank, which is required due to the variable nature of reject flows. Submersible pumps in the EQ tank deliver water to the secondary stage membranes. Filtered water from the secondary stage can then be directed one of several locations: the chlorine contact tank; recycled to the front of the treatment facility; or directed to waste via a wastewater pumping station and ultimately to a sanitary sewer.

There is very little waste produced by the UF system with approximately 99.5% recovery in the overall system. The membranes are capable of producing filtered water to meet the turbidity standards required. Daily direct integrity testing of the membranes also demonstrates the ability to meet the requirement for log removal of giardia lamblia.

Filtered water is treated with chlorine for disinfection prior to entering the chlorine contact chamber where the water remains

in contact with the desired dosage of chlorine for a sufficient amount of time to properly disinfect the water. Upon transition from the contact chamber to the clear well, the disinfected water is treated with; caustic soda for pH adjustment; and with fluoride for dental health reasons. The water is then ready for distribution to the users of the system via the pumping station located adjacent to the water treatment facility. There are four high lift pumps at the station and are controlled based on maintaining a water level in the Ferris Hill reservoir in order to meet consumer demand, fire protection and system pressure requirements.

The distribution system includes 175 km of pipe, 660 fire hydrants and 6,500 water meters with radio frequency technology.

Article by: Ray Boudreau, Water Treatment Supervisor, CBRM



Treatment Plant Operator, Derrick Jessome, monitors the water flow to the primary stage of the UF system.

MWWE Update

On February 17, 2009 the Canadian Council of Ministers of the Environment (CCME) endorsed the Municipal Wastewater Effluent (MWWE) Strategy. The Strategy's main focus' are:

- improved human health and environmental protection
- improved clarity on the way municipal wastewater is managed and regulated.

As one of the first steps to implement the Strategy, Nova Scotia Environment (NSE) sent a letter to all municipal owners of wastewater facilities in 2010 listing their associated risk rankings of high, medium or low. The letter provided some of the deliverables and timelines of the Strategy, including upgrading facilities



to meet National Performance Standards in 10, 20 or 30 years depending on risk. This letter was intended to help municipalities in their planning process. Municipal units who did not receive the letter should contact their local NSE office.

2010 also marked the release of the draft federal Wastewater Systems Effluent Regulations on March 20th. NSE provided comments on the draft regulations including recommendations from Minister Sterling Belliveau that the regulations more closely match the Strategy endorsed by the CCME and that a dedicated funding program for wastewater

accompany the regulations. NSE continues to work with Environment Canada through CCME to ensure our concerns are addressed. Publication of the final regulations in Canada Gazette II is expected to occur in the spring of 2011.

For 2011, some of the major wastewater initiatives expected to occur include publication of the final federal regulations, negotiating an administrative agreement to provide a “one-window” regulatory approach, and providing guidance to municipalities on Strategy objectives such as sewer overflows and completion of environmental risk assessments.

**Article by: Stefan Furey, P.Eng.,
Nova Scotia Environment**

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