

communities first

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Yarmouth Water Treatment Plant

"It was the first time a Dissolved Air Filtration system had been piloted in Canada, but they have been in use in Europe since the early '90's, so we weren't worried about using the technology."

—David Ernst

"It was the first time a Dissolved Air Filtration (DAF) system had been piloted in Canada, but they have been in use in Europe since the early '90's, so we weren't worried about using the technology," says Ernst.

They broke the project down into two affordable phases, built a new pumping station, and planned to build the treatment system later on.

Later on came quickly. In 2002, the *Halifax Chronicle Herald* picked up on a 2000 Department of Environment study, and published a list of 10 communities with dangerously high trihalomethane (THM) levels in their water. Yarmouth was on the list. THMs develop when organic matter from surface water such as lake water, is mixed with chlorine. They are cited as a major health risk.

"People were becoming very concerned over the carcinogens, birth defects and bladder cancer said to be connected to high levels of THMs," says Ernst. Spurred by the concerns, the Town applied to the Canada-Nova Scotia Infrastructure Program for funding for the DAF system. Their THM levels dropped dramatically.

"Most individual residents don't notice the difference in the quality of the water," says Ernst, although they did notice their higher water rates. But for some people in town, like the local seafood processing plant, the improved quality is tangible.

IMO Foods Ltd. produces 100 different canned seafood products at their Yarmouth facility, and exports them as far away as Australia. The company is one of Yarmouth's biggest water clients.

Water is an integral part of seafood processing. In addition to relying on good water for washing and 'flushing' cans and seafood, and for thawing frozen fish in winter, it also plays a role in the food itself.

"We make our own sauces here," says Phillip LeBlanc, President and General Manager. "Water is the second biggest component in our tomato sauce and in our brined kipper fillets so we're very concerned about the quality."

LeBlanc noticed the tangible effects of the new water plant almost immediately, especially when it comes to a natural phenomenon of the

Out of sight out of mind.

What better way to describe the relationship most people seem to have with their household water supply? Pay the bill, and water comes out of the tap. But behind the scenes are hundreds of pipes, plants and people involved in bringing good potable water to our homes and industries. They ensure that every drop – from morning cup of tea to evening can of kippers – is made with the best water possible.

As Town Engineer and Director of Public Works for the Town of Yarmouth, David Ernst knows all about how the governments of Canada and Nova Scotia have developed standards to ensure top-notch water supplies.

It all started in 1993 when Ernst and his colleagues were advised that new Canadian Drinking Water Guidelines were coming down the pipe. He took a good look at their '70's-era facility.

"The residents always complained about the taste of chlorine, and the look of the water could sometimes be unappealing," said Ernst, but otherwise it seemed okay.

However, sampling and testing of Lake George, the town's only water source, indicated that their lime and chlorine treated water would fall short of the new standards, so they piloted several new systems, and found what they needed.



Top left: David Ernst, Town Engineer and Director of Public Works for the Town of Yarmouth, holds a diagram of the Lake George Watershed area.

Top right: Phillip LeBlanc, President and General Manager, inspects the canning process at IMO Foods Ltd.



A Message from the Honourable Gerry Byrne Minister of State for the Atlantic Canada Opportunities Agency

Welcome to the second issue of *Communities First*, the Canada-Nova Scotia Infrastructure Program newsletter. The publication highlights a few of the great projects this unique partnership has funded, and provides an update on the program's progress.

Since the beginning of the program, more than \$152 million has been invested in 97 projects. All across the province Nova Scotians are witnessing the tangible results of what this important funding means to them.

The projects you'll read about in this issue represent an incredible amount of hard work. After first identifying their most important needs and then working in partnership with the Government of Canada and the Province of Nova Scotia, the three featured municipalities have brought their community priorities to life.

Whether contributing to the restoration of a historical landmark, or building an innovative plant that will ensure a community has clean, safe drinking water supply for years to come, all projects under this program will have a positive effect on a community's quality of life.

The Government of Canada takes the health and well being of all of its citizens very seriously. I hope you'll enjoy reading a few of their stories as much as I have.

canning process – the formation of diamond-like crystals inside the cans. The crystals are harmless, but don't inspire confidence, especially in the competitive export market.

Now that the town uses less lime in the water treatment process, LeBlanc is seeing a marked reduction in crystal formation: "Of the five to ten million cans we produce every year, we used to get 20 crystals a year. We now see only 10 to 12 cases a year."

Like the residents of Yarmouth, LeBlanc would like better water quality without having to pay more for it, but realises it's a delicate balance. Instead, they pay the rates and conserve where they can. As LeBlanc notes, you just can't please everyone. Too much lime in the water and the plant gets crystals in their seafood. Too little and the residents complain of scaling in the water.

But they're working it out, and everyone wins in the end.

Lunenburg Solid Waste Management

The Lunenburg Regional Recycling and Composting Facility is like a big theme park for environmentalists. It's 120 solid acres of future planning. "What we've tried to create here is a one-stop shop for solid waste," says David Daniels, Solid Waste Operations Manager at the facility.

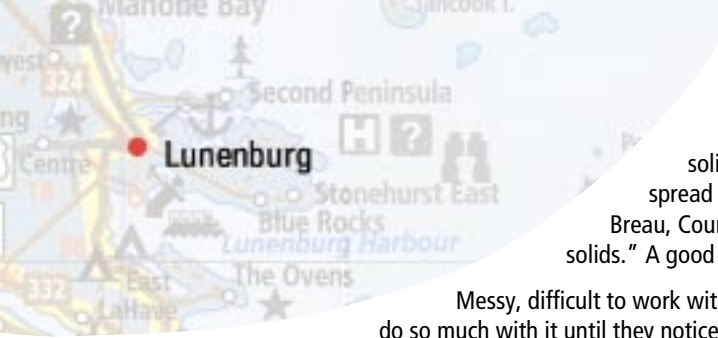
Out behind the building where blue bag and green bin contents are sorted, are great mountains of sorted debris – landfill in the not so distant past. Not now. A massive heap of used wood is being chipped to be burned for energy, a pile of old roofing tile will be for road material, and thousands of gleaming bottles are ground into sand for possible reuse as a filter for a sewage treatment plant. Hills of compost stand ready for the garden. Does anything go to waste here? Apparently not.

The Municipality of Lunenburg, and its municipal partners, the Towns of Bridgewater, Lunenburg and Mahone Bay, have been leading the way for solid waste management for almost a decade. In the mid 90s, they were the first facility in North America to use the green bin concept – composting curbside waste such as kitchen scraps. Today, they are applying a new application of filtration and recirculation to an old technology of drying sludge.

L-R: Charles Powers, Nora Nauss, David Daniels, Pierre Breau and Scott Nowe at the Lunenburg Regional Recycling and Composting Facility.



"Your base of soil can be as poor as can be, but a bit of peat moss and some of their compost brings it right around." – Charles Powers



“At the end of the 19th century, they would manually scrape off the solids, from sewage collection systems, and spread it on gravel to dry,” explained Pierre Breau, County Engineer, “Then they disposed of the solids.” A good model, to a point.

Messy, difficult to work with and dispose of, the facility could only do so much with it until they noticed something that has since made the sludge part of their business blossom. “We’ve noticed that over time, the sun was drying up the top of the sludge in the holding tanks,” says Daniels. “But the clay soil it was sitting on didn’t absorb the water underneath, and we couldn’t efficiently scrape off the top.”

With funding from the Canada-Nova Scotia Infrastructure Program, they’ve constructed two sludge drying beds that enhance the efficiency of the composting process. Designed by CBCL Limited, these beds are a more efficient version of the old model. Aerated sludge is poured onto 4’ deep beds of sand, which drain the water and allow the sludge to dry unhindered. The water is recycled back to the lagoon for treatment. Within six weeks, their first batch was ready—20,000 cubic feet of sludge became three tandem truckloads of fine, dry nitrogen-rich material. At a project cost of \$300,000, the new facility will handle up to 90,000 kg / per year for the region’s septic hauling services.

For example, Scott Nowe’s Septics Pumping is one of several companies in the area that empty the approximately 15,000 backyard septic tanks serviced by the depot. Nowe alone brings them 10 to 15 thousand tons annually.

So with truckloads of the new material here, great mounds of compost there, and a waste management philosophy that shuns waste of any kind, it’s not difficult to guess what happened next.

“Your base of soil can be as poor as can be, but a bit of peat moss and some of their compost brings it right around,” says Charles Powers, area resident and home horticulturalist. “It’ll really fix your lawn.”

After mixing with other organic compost, Daniels points out that only 1 - 1.5% of the 8,000 tons of organic material they produce per year was once sewage sludge. His product is meeting all regulatory requirements and is tested on a regular basis by an outside company. “That stuff grows, I’m telling you,” says Breau.

And Nora Nauss, a local resident, isn’t bothered. Like Powers and hundreds of other area residents, she has nothing but praise for the quality of the compost. She’s been using it for years on everything she grows, vegetables and all.

Now that’s solid management.



Glace Bay Water Treatment

The future of drinking water in a community along the eastern coast of Cape Breton Island is now crystal clear thanks to a new water treatment plant. Almost 30,000 people in Glace Bay and surrounding area now have access to safer drinking water at a turn of their tap.

In the early 1990s, the former town of Glace Bay (now part of the Cape Breton Regional Municipality (CBRM)) started exploring the possibility of a new water treatment plant. High trihalomethane (THM) levels were becoming an issue. Glace Bay had a highly chlorinated system with very little other treatment. Low water supply was also an issue for the community.

“There was always a fear that we were going to run out of water,” said Greg Penney, CBRM’s Water Utility Operations Manager. “It was common practice to have water restrictions in Glace Bay year in-year out. There were no water meters so people were not the best at conserving water.”

In July 2001, the Glace Bay water treatment plant received funding from the Canada-Nova Scotia Infrastructure Program. “This \$10.7 million project would never have happened without funding from the Infrastructure Program,” said Mike MacKeigan, Manager of Utilities Administration.



A Message from Honourable Barry Barnett Minister of Service Nova Scotia and Municipal Relations

Welcome to another issue of *Communities First*, the Canada-Nova Scotia Infrastructure Program’s newsletter. This annual publication highlights the achievements of the Infrastructure Program. As the new provincial minister responsible for the Canada-Nova Scotia Infrastructure Program, I am very impressed with the accomplishments of the program in improving the quality of life in communities throughout Nova Scotia.

The issues that we are addressing through the Canada-Nova Scotia Infrastructure Program are too big for any one level of government. Developing efficient, effective solutions is only possible through the ongoing commitment and dedication of all levels of government. I am pleased that the federal, provincial and municipal governments are working together to meet our common goals – safe drinking water, a healthy environment and an opportunity to prosper here at home.

Strong communities build a strong country – together with our federal and municipal partners, we are not just improving the quality of our water and cleaning our environment, we are building a better quality of life.

This issue showcases some of our success stories that exemplify what we can achieve when we work together – building strong, healthy communities. I am confident that readers will find this newsletter *Communities First* informative and interesting.

Water treatment workshop a success

Providing safe drinking water to Nova Scotians is something no one can take for granted. This was apparent in June when more than 50 people representing water utilities throughout Nova Scotia gathered to share their knowledge and expertise in water treatment. The CNSIP sponsored a workshop, *“Developing Water Treatment Facilities: Issues/Best Practices”*, which focused on best practices for municipal water utilities to consider in developing new or upgraded water projects.

The workshop included presentations on Nova Scotia’s water drinking strategy, water rate application process and procuring engineering services. There were case study presentations from five municipal water utilities, which either recently completed or were currently involved in water treatment projects in Nova Scotia.

From pre-design to financing, construction to commissioning, the workshop highlighted the issues and best practices for each phase in the development of a water treatment plant.

A report that documents the issues and best practices discussed by the workshop participants is available at www.cnsinfrastructurecne.ca or by calling (902) 424-0112.

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“A conventional water treatment system was best suited for the water in Glace Bay,” said MacKeigan. “The primary source of water for Glace Bay was Sand Lake for about 100 years but we’ve always had problems with the quantity.” The water supply now comes from MacAskill’s Brook, a water source that was developed for the atomic energy plant in the late 1960s. The water quality was not as good as Sand Lake but with full treatment, both quality and quantity would no longer be an issue.

“Another bonus with the MacAskill’s Brook water source is that we were able to use existing infrastructure from that water supply,” said MacKeigan. “The new water treatment plant is close to the old atomic energy plant, which had water lines that we were able to use. A lot of things worked out for us.”

When designing the water treatment plant, CBRM used foresight to address possible future issues such as stricter guidelines for safe drinking water. The new water treatment plant is designed to produce water with a THM level of less than 50, well below the Canadian Drinking Water Guidelines. “These guidelines are always changing and we anticipate the guideline to change from 100 to 50. We’ve also designed the facility to add further filtration so at some point down the road, we can get lower than 50,” said Penney.

Do the people of Glace Bay see a change in their water? Penney said that the change was remarkable and immediate. “There were people that thought that it would never happen. Now, a common remark from most people is ‘my God! I can see the toilet’ or when they bathe the kids, the water is not dirtier coming in than it is going out. The discoloured look is gone now – the water is crystal clear.”

CBRM is partnering with the Atlantic Coastal Action Plan (ACAP), an environmental advocacy group to help develop a conservation campaign. As well, CBRM is working closely with industries, such as the fish processing industry, to cut down on waste.

Water conservation is the major focus now for the community. Fully treated water is expensive to produce. “CBRM is concentrating on conservation with the community at large to try to get everyone aware of ways to conserve water, easy steps such as fixing leaky faucets or toilets that wastes a lot of water,” said MacKeigan.

From a murky beginning to a sparkling finish, Glace Bay is a clear example of how a community can work together to conserve, control and clean their water system.

“... when they bathe the kids, the water is not dirtier coming in than it is going out. The discoloured look is gone now – the water is crystal clear.” – Greg Penney

An aerial view of the Glace Bay Water Treatment Plant.

