

Maritime Provinces Water & Wastewater REPORT

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NOTE FROM THE CHAIR

Andrew Garnett

MPWWA Chairperson

As we begin another year, we must dedicate ourselves to becoming the best water and wastewater operators we can be. The field in which we work demands a lot from us and we must be prepared to meet this challenge. It is important to reflect upon how important our roles and responsibilities are to people we provide services for and to the environment in which we live.

We must not only grow as individuals, but as an association. Although we have shown an annual increase in membership, it is necessary to grow within as well. We must continue to provide ample training for certification and generally be a "learning wall" for all members. The opportunity to learn from each other and share work experiences is invaluable.

This year, our annual conference will be held in Prince Edward Island. From April 26 to 29, Charlottetown will host us in the fine fashion they usually do. I invite everyone to come and experience this conference as it's sure to be a memorable one. Billy Ramsey and Delbert Reeves are organizing the 2009 event, themed "Operational Excellence", and deserve great thanks for all their hard work.

Each year at our conference, we elect the executive. If you are interested in becoming a zone representative or know of somebody who may be, please let us know. This is your way to help ensure the continued success of our association.

I hope you all enjoyed your Christmas holidays and wish you the very best in 2009. See you in Charlottetown!



Photo by CNS/Shirley Robb

Jamie Muir, Minister of Service Nova Scotia and Municipal Relations, and Peter MacKay, Minister of National Defence and Minister for the Atlantic Gateway, finalize the Canada-Nova Scotia Gas Tax Fund extension agreement.

Federal government invests in local infrastructure Nova Scotia and New Brunswick benefit from additional gas tax funding

Communities across Nova Scotia and New Brunswick can now plan for their long-term infrastructure needs thanks to additional funding from the federal Gas Tax Fund. New Brunswick and Nova Scotia will receive more than \$178 million and \$223 million, respectively.

"This is a major investment to help build strong, healthy communities throughout Nova Scotia," says Minister of Service Nova Scotia and Municipal Relations Jamie Muir on behalf of his province. "It will help

Nova Scotia communities prepare for future development and prosperity."

The additional gas tax funding has been made possible through an extension agreement announced in mid-December by the governments of Canada, Nova Scotia and New Brunswick. This funding, to be provided over four years starting in 2010, will allow each level of government to stimulate the economy by continuing to flow infrastructure funding for projects relating to: public transit, community energy, local roads,

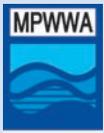
water, wastewater and solid waste infrastructure improvements.

"Investing in infrastructure is key to improving the quality of life for residents," says New Brunswick's Minister of Local Government Bernard LeBlanc. "This announcement is an example of how we are committed to continuing to strengthen our partnership with our federal colleagues to enable communities all across New Brunswick to improve and maintain safe and adequate local infrastructure on the road to self-sufficiency."

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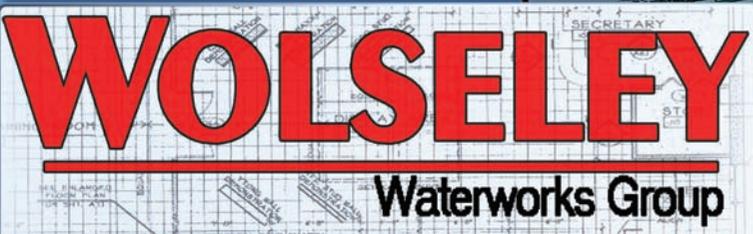
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Valley survey: First step to establish a plan for sustainable groundwater use

■ BY TRANSCONTINENTAL MEDIA

Farmers and other groundwater users in the Annapolis Valley are being asked to take part in a study that will help to improve water use planning.

The departments of Natural Resources, Environment and Agriculture, as well as Agriculture and Agri-Food Canada and the Nova Scotia Federation of Agriculture, are working together to ensure groundwater is used in a sustainable manner.

The project has received \$46,200 in funding from the Canada-Nova Scotia Water Supply Expansion Program and the provincial government has matched the funding support. It will expand on a 2006 study that estimated how much groundwater is available in the Valley's underground water sources, or aquifers. The latest project will estimate groundwater demand for all users in the Annapolis Valley. The survey is aimed at 900 well users, including 600 farmers. It is only one of a series of steps to establish a plan for sustainable groundwater use.

"With farm income in the Annapolis Valley totaling more than \$230 million per year, the ability to meet water needs to maintain and grow these revenues will be extremely important," says

federal Agriculture Minister Gerry Ritz. "The 2006 study showed an estimated half-million cubic metres of groundwater per day is available to farmers and other water users. This new survey will help farmers and other water users better manage this precious resource."

The aquifers underlying the Annapolis Valley represent some of Nova Scotia's most important water resources. They supply water to the agriculture industry, private wells, municipal water, and commercial and industrial operations.

"To ensure sustainable prosperity as we move toward a greener future in Nova Scotia, we must manage our environment wisely," says Environment Minister Mark Parent. "This study is an example of the forward-looking science we need, especially in light of the climate change challenges we face."

Survey questionnaires have gone out to Annapolis Valley farmers and other non-residential groundwater well owners. The completed surveys will provide the province with a better understanding of how much groundwater is being used.

Survey entries are due by January 30. The survey is being conducted by a private, independent environmental consulting firm and is expected to be completed by March.



UNESCO introduces new world map of underground aquifers

The United Nations Educational Scientific and Cultural Organization (UNESCO) has published the first-ever world map of shared aquifers. This coincided with its submission to the General Assembly of the United Nations of a draft Convention on Transboundary Aquifers.

Almost 96 per cent of the planet's freshwater resources are to be found in underground aquifers, most of which straddle national boundaries. Despite its strategic importance, no global inventory of this resource had been compiled to date.

Since 2000, UNESCO's International Hydrological Programme (IHP) has been participating in the establishment of a groundwater database. It is now presenting a detailed map of transboundary aquifers — available online — showing the delineations of aquifers that are shared by at least two countries. It also provides information about the quality of their water and rate of replenishment.

So far, the inventory comprises 273 shared aquifers: 68 are in the Americas, 38 are in Africa, 65 are in eastern Europe, 90 are in western Europe and 12 are in Asia. The aquifers, which contain 100 times the volume of fresh water that is to be found on the Earth's surface, already supply a sizeable proportion of the globe's needs.

The growth in the demand for water since the second half of the 20th century has been met by the increased use of underground resources. Globally, 65 per cent of this utilization is devoted to irrigation, 25 per cent to the supply of drinking water and 10 per cent to industry.

Underground aquifers account for more than 70 per cent of the water used in the European Union and are often one of the only — if not the only — source of supply in arid and semi-arid zones (100 per cent in Saudi Arabia and Malta, 95 per cent in Tunisia and 75 per cent in Morocco). Irrigation systems in many countries depend very largely on groundwater resources (90 per cent in the Libyan Arab Jamahiriya, 89 per cent in India, 84 per cent in South Africa and 80 per cent in Spain).

Although aquifer systems exist in all continents, not all of them are renewable. For example, those in north Africa and the Arabian peninsula were formed more than 10,000 years ago when the climate was more humid and are no longer replenished. In some re-

gions, even if the aquifers are renewable (being fed on a regular basis by rainfall), they are in some cases endangered by over-exploitation or pollution. In the small islands and coastal zones of the Mediterranean, populations often use groundwater more rapidly than it is replenished.

The aquifers in Africa, however, which are some of the biggest in the world, are still largely under-exploited. They have considerable potential, provided that their resources are managed on a sustainable basis. Since they generally extend across several state boundaries, their exploitation presupposes agreed management mechanisms in order, for example, to prevent pollution or over-exploitation by particular states.

Mechanisms of this kind have begun to emerge in recent years. For example, in the 1990s Chad, Egypt, the Libyan Arab Jamahiriya and Sudan established a joint authority to manage the Nubian aquifer system in a concerted manner. In their project concerning the Iullemeden aquifer, Niger, Nigeria and Mali approved in principle a consultative mechanism for administering the aquifer system. But such mechanisms are the exception.

The draft Convention on Transboundary Aquifers, prepared by the United Nations International Law Commission with the assistance of experts from UNESCO's International Hydrological Programme (IHP), is intended to fill a gap in the law. The text submitted to the General Assembly of the United Nations on October 27 called on aquifer states not to harm existing aquifers, to cooperate and to prevent and control their pollution.

The Worldwide Hydrological Mapping and Assessment Programme (WHYMAP) was launched in 1999 to improve knowledge and management of the Earth's resources, particularly groundwater. In 2000, the IHP launched the Internationally Shared Aquifer Resources Management (ISARM) project to compile an inventory and to evaluate the world's transboundary aquifer systems (delineating them, estimating their volume, their replenishment rates, etc.). A region-by-region evaluation has been launched. In its initial phase, it will identify geographical locations and then itemize the legal systems of each country as they relate to aquifer management.



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**MPWWA PROFILE:***Ed Calder*

Every issue, the MPWWR shines a spotlight on an MPWWA member making a difference in the industry. Ed Calder is the focus of our January issue.

BY STEPHEN CLARE

Ed Calder wants to ride off into the sunset once he retires in the spring.

After 38 years on the job as a boiler operator and wastewater treatment plant manager and maintenance person at Canadian Forces Base in Gagetown, New Brunswick, Calder is calling it a career this coming May.

"It's time for me to go. I have worked hard here just about all of my adult life and I have a lot of great memories, but you have to hand in your cards at some point," says the native of Jemseg, which sits just a few miles down the road from Gagetown.

With almost four decades under his belt in the industry — the last 11 as a proud and active member of the Maritime Provinces Water and Wastewater Association — Calder has seen his fair share of changes to the profession.

"These days you need to take many different courses for certification. That



wasn't the case when I first started out. Also, the rules and regulations regarding safety have really improved in my time."

As well, Calder points out that advances in technology have made a big difference in the way he does his job.

"Things are much more efficient today. In our 50-year-old facility that means things break down a little less often."

Calder says although his work has been challenging and rewarding, it's the

people he has worked with through the years that he will miss the most when he retires.

"We are just like a big family here. For a lot of us, our entire social network is here on the base. It's going to be hard not seeing these folks every day — but I do know where they work so I can swing by and visit them any time," he adds with a smile.

Calder will likely do that on his 2005 Harley Davidson Touring Classic.

"I have been riding almost all of my life," he says. "The plan is to take six months off after I am done here while I wait for my wife to retire, and then we are going to travel on the bike around Canada and the U.S."

The couple is not unfamiliar with the terrain or the lifestyle.

"We have managed to get to quite a few bike rallies right across the continent since we started hitting the road together," says Calder. "People come from all over the world to these events and it has been great to meet so many other motorcycle enthusiasts. There are a lot more people my age out there on the roads each year. Like me, many of them are enjoying their retirement by riding off into the sunset."

Orangedale toasts the holidays with clean drinking water

BY TRANSCONTINENTAL STAFF

WITH FILES FROM THE CAPE BRETON POST

After many years of anticipation, the rural Inverness County community of Orangedale finally has clean, safe drinking water running through its taps.

Chair of the Orangedale Water Society Sally Chisholm and residents say it couldn't have been a nicer Christmas present.

For many years, most residents had to travel to Iron Mines, six kilometres away, to fill jugs with untreated spring water which they used for drinking and cooking. Gypsum deposits in the area prevented most residents from using private wells as sources of drinking water.

Those who used Orangedale's tap water were subjected to many extended boil orders due to persistently high bacteria counts which not only produced uningestible drinking water but skin-irritating bathing water.

The dissolved air flotation (DAF) system was only about a decade old but residents argued it never functioned properly. Chisholm says the suspended solids and organic particles removed from water in the DAF process just ended up getting dumped back into the water source, which led to the elevated levels of aluminum in water even after treatment.

In April 2006, a \$250,000 contribution from the Provincial Capital Assistance Program toward the creation of a new water treatment system was announced, followed a month later by federal and provincial funding of \$185,000 under the joint Municipal Rural Infrastructure Fund. The Municipality of Inverness contributed \$50,000.

Work on the new water treatment system began in September 2006. During the process, a five-kilometre long water line was laid, running from the water source at Iron Mines to Orangedale.

Officials had hoped to wrap up construction by spring 2007. Delays were initially attributed to waiting for the final funding to fall into place and the time required to investigate different equipment options.

Chisholm notes the project was a major undertaking for a community-based organization comprised of volunteers, but says all the effort was more than worthwhile. Now more than 80 households are reaping the benefits of a new single filtration system with chlorine and ultraviolet treatment.

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IN FOCUS: Latest news in water and wastewater industry

- On December 5, Atlantic Industrial Services registered the proposed expansion of waste management services in Debert, Nova Scotia, for environmental assessment in accordance with Part IV of the Environment Act. The purpose of the proposed undertaking is to provide additional storage capacity and enhanced processing capabilities to enable the existing Debert Industrial Waste Management Facility to manage wastewater and containerized waste materials generally classified as waste dangerous goods. The planned expansion will take place within the boundaries of the existing facility located at 660 MacElmon Road, in the Debert Industrial Park, Colchester County. Implementation is planned over a two-year period (2009 to 2010).
- A new atlas is available online to help persons seeking information about the quality of groundwater in any given area of New Brunswick. The New Brunswick Groundwater Chemistry Atlas (available at <http://www.gnb.ca/0009/0371/0014/index-e.asp>) is comprised of groundwater quality data collected under the potable water regulation of the Clean Water Act from domestic water wells drilled between 1994 and 2007. It is expected to be a useful reference for health professionals, scientists, researchers, planners, municipal officials and the public. The atlas provides information on 28 naturally occurring chemical parameters related to groundwater quality, including pH, fluoride, hardness, as well as information on geology, well depth and location.
- On January 2, North American design firm Stantec announced it had completed the acquisition of

Jacques Whitford, an environmental consulting services firm with more than 1,700 employees and 40 offices principally in Canada. Founded in 1972 and headquartered in Halifax, Nova Scotia, Jacques Whitford is an internationally recognized leader in engineering, environmental and earth sciences solutions with offices in all Canadian provinces and territories and several states in the U.S. Similar to Stantec, one of Jacques Whitford's many areas of expertise is water resources. Jacques Whitford provides complete services for the exploration and development of municipal, rural and industrial groundwater supplies, and comprehensive water quality assessments.

- RBC has announced its latest round of RBC Blue Water Project Leadership Grant recipients. Twelve organizations, selected from 206 applicants from across North America, will share more than \$1.7 million in grants to support programs that help protect watersheds and ensure access to clean drinking water. One of these organizations is the Centre for Indigenous Environmental Resources (CIER) in Canada. Its grant of \$400,000 will fund an online education tool to improve watershed management in traditional territories in British Columbia, Nova Scotia and Alberta, where inadequate resources and capacity often limit a community's ability to engage in watershed planning. CIER will work with the Hupacasath First Nation (BC), the Mikisew Cree First Nation (AB), the Unama'ki Institute of Natural Resources (NS), and the Union of Nova Scotia Indians over the next three years in the development of this management tool.

- A Saint-Jacques-area contracting company has been charged by the New Brunswick Department of Environment with violating a watershed-protected area designation order under the Clean Water Act. The department alleges that D.L. St. Onge Enterprise Inc. of 9 Michaud Street in Saint-Jacques failed to comply with forest harvesting restrictions within the Iroquois River watershed between Nov. 11, 2006, and Jan. 1, 2007. The company is scheduled to go to trial in Edmundston provincial court on March 13.
- Fisheries and Oceans Canada closed the Annapolis Basin near Digby, Nova Scotia, to shellfish harvesting on December 2. An overflow at Digby's sewage treatment facility was blamed for an increase in levels of bacteriological contamination in the area. The closure included the harvesting of oysters, soft shell clams, razor clams, surf clams, mussels, scallops,

quahogs, and gastropod molluscs such as whelk, for recreational or commercial purposes. The area from inside a line drawn from Port Wade to Deep Brook remained open, including the Thornes Cove and Cornwallis areas.

- On December 3, the New Brunswick Department of Health reported homes and businesses affected by a chromium trioxide spill in the Evergreen Park area of Fredericton on October 27 could now use their well water for activities such as showering and washing clothes. The advisory not to drink or consume well water still applies to 10 homeowners and 20 businesses in the Evergreen Park area. Since Oct. 31, the New Brunswick Department of Environment has been providing drinking water to those to whom the advisory applies. Public health inspectors have notified all homes or businesses considered at risk.



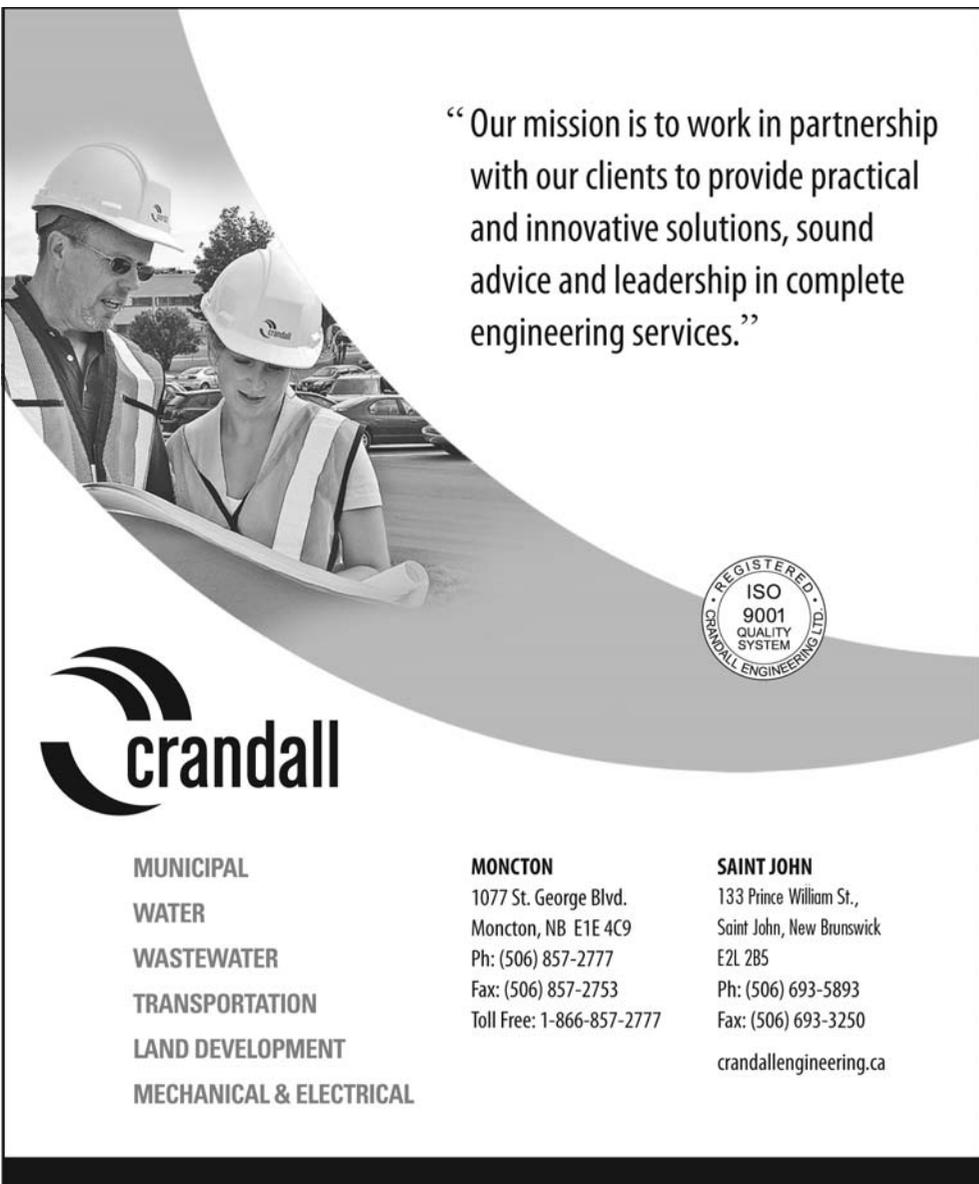
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Harvey area water shows high levels of uranium

The results of recent tests to determine levels of uranium in water from the Harvey area in New Brunswick are consistent with those of a study done in 1981, says Health Minister Michael Murphy.

From May to August of 2008, the New Brunswick Department of Health conducted free tests of 525 water samples received from homes and businesses in the village of Harvey and along Route 3 to York Mills. The tests showed that 16 per cent of the samples contained uranium in excess of the acceptable level of 20 micrograms per litre in drinking water. In comparison, the previous study concluded that 23 per cent of the 86 samples taken contained levels of uranium exceeding the guideline.

"All individuals who submitted water samples to the department earlier in 2008 were notified of their respective test results within days of providing their sample," Murphy says. "We are releasing this summary so the community can be informed of the overall results."

The New Brunswick Department of Health determined in May that the new tests were necessary because it was not possible to determine

whether the results of the August 1981 study had been reported to participants.

The department also tested the recently acquired water samples to determine levels of arsenic and selenium. In 33 per cent of the samples, the tests found arsenic to be above the acceptable level of 10 micrograms per litre. None of the samples contained elevated levels of selenium.

The Harvey area has a history of elevated levels of naturally occurring arsenic. In 1992, a study of arsenic in well water in southern York County found a total of 26 of 191 water samples exceeded the then guideline of 25 micrograms per litre. Most of the samples that were in excess of the guideline were taken in the Harvey Station area, and local residents were notified of the results at that time.

The New Brunswick Department of Health is actively advising all private well owners to be diligent about testing their water quality regularly. It emphasizes testing should be done twice annually for microbiological contamination and every two years for inorganic compounds such as arsenic and uranium.



A special designation protects Amherst's water

The Town of Amherst's drinking water supply is now better protected with the designation of watershed lands as a provincial wilderness area.

About 970 hectares of Amherst-owned lands, northeast of the town, make up the new Chignecto Isthmus Wilderness Area in Cumberland County.

The town requested that the province apply the higher level of protection to the lands which are within the municipal water protection area.

The Nova Scotia Department of Environment and town staff worked closely together to develop terms and conditions of designation acceptable to both parties. The Department of

Natural Resources assisted with the designation.

The area protects bogs, marshes, coniferous and mixed forest and the endangered mainland moose. Its importance also stems from its location in the narrow, low-lying land bridge which connects Nova Scotia to New Brunswick. The area was already closed to unauthorized use of motorized vehicles by provincial water supply protection regulations.

This is the second wilderness area to be established on municipal water supply lands. In 2005, the Town of Antigonish agreed that lands surrounding that town's municipal water supply would be added to the Eigg Mountain-James River Wilderness Area.

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Photo courtesy of the Regional Development Corporation

Attending the funding announcement were: Nick Duivenvoorden, mayor of Belledune; Roland Haché, environment minister and minister responsible for the Regional Development Corporation as well as the Northern New Brunswick Infrastructure Initiative; Peter Hancock, general manager of Xstrata Zinc's lead smelting operation in Belledune.

Infrastructure improvements to be made in Belledune

An investment of \$500,000 will be made to improve water and sewer infrastructure in Belledune. Environment Minister Roland Haché, minister responsible for the Regional Development Corporation as well as the Northern New Brunswick Infrastructure Initiative, made the announcement on November 10.

"The Province of New Brunswick is proud to help fund this important strategic infrastructure project," said Haché. "To attain our goal of self-sufficiency, we need adequate tools to make northern New Brunswick a place in which to invest and to create new opportunities."

Haché was joined by Belledune mayor Nick Duivenvoorden and Peter Hancock, general manager of Xstrata Zinc's lead-smelting operation in Belledune.

Funding under the Northern New Brunswick Infrastructure Initiative will be used toward a \$1.5-million water and sewer infrastructure upgrade project in the Chaleur Drive subdivision. With the pending

closure of Xstrata's Brunswick Mine in 2010, the company is transferring ownership of the water and sewer infrastructure to the Village of Belledune upon completion of the project.

"Xstrata Zinc is pleased to collaborate with the Town of Belledune and the Province of New Brunswick on this very important project," says Hancock. "This system upgrade and transfer of ownership to the municipality will ensure that the residents of Chaleur Drive will have these important services for a lifetime."

The Northern New Brunswick Infrastructure Initiative is a four-year undertaking expiring in March 2012. It funds strategic investments in three priority areas: transportation, business and strategic infrastructure. Eligible areas for assistance include those defined by the Restigouche, Chaleur, Acadian Peninsula and Miramichi Community economic development agencies, including Rogersville.

LuminUltra Technologies gets financial boost

Seven positions will be created at LuminUltra Technologies Ltd. in Fredericton to help with market diversification thanks to a \$200,000 term loan from the provincial government. Business New Brunswick Minister Greg Byrne made the announcement in early November.

"Our government is supporting LuminUltra as it continues to grow its operation and market reach," Byrne says. "LuminUltra is proving that in New Brunswick, companies can be innovative, can be more competitive, and can be more successful as they compete in the global marketplace."

The company was formed in 2004 to market a new technology for measuring adeno-

sine triphosphate as a real-time indicator of micro-organisms in water and wastewater systems. It helps countries around the world maintain healthy drinking water and provides opportunities for increased cost effectiveness and energy efficiency in industrial water and wastewater treatment operations.

"During our four years of commercial operations, we have maintained a commitment to innovation and continuous improvement," says Pat Whalen, vice-president of operations for LuminUltra. "This innovation not only involves the development of new techniques and products, but also the development of new markets for our existing and future products."

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Sewer hook-up exemptions in Pictou County denied

BY THE NEWS

TRANSCONTINENTAL MEDIA

Six residents living on the Scotsburn Road in Pictou County have been denied their request for an exemption from hooking onto the Lyons Brook sewer project.

Diane Nightengale, who spoke to county council at the beginning of December on behalf of the residents, said they signed a petition earlier in the year that was circulated by their neighbours. The 16 residents were permitted an exemption from the project last July because they didn't get enough notice.

These six homes were included in the original scope of the project. Unfortunately, in order to hook on, the homeowners need a special pump that "grinds" solid waste before sending it into the sewer system. They have concerns that these pumps will increase their electricity costs and break down repeatedly.

Councillor Jim Turple proposed an amendment to the county bylaw that requires any home within 61 metres of the lateral sewer line to hook onto the line at a cost of \$2,500, plus whatever costs are needed to run a line to the home. He suggested that any resident who would have to use a pump to hook onto the line be exempt from the bylaw.

Turple's suggestion would mean 209 homes could choose to be exempt, which would potentially create a \$522,000 shortfall for the \$6-million project. If the county had to come up with nearly half a million dollars to cover the shortfall, it would mean hiking the tax rate across the county by five cents per \$100 of assessment.

Councillor Allister MacDonald said he feels sorry for the expense that people will have to incur in order to hook onto the sewer line, but insisted enough is enough.

Council soundly defeated the motion, with only Turple and councillor Ed MacMaster voting in favour of the widespread exemption.



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Hanna wreaks havoc in Cornwall

BY ANDY WALKER

This past fall, Hurricane Hanna left a calling card in the Prince Edward Island community of Cornwall.

Before the hurricane made its way out to sea last September 7, it dumped close to 100 millimetres of rain on the central part of P.E.I. in a matter of hours. A four-inch corrugated metal drain pipe designed to carry away the excess rain water simply wasn't up to the job.

"We think now it was compromised by some work done on the sewer system in the 1980s," says Darrell Evans, manager of design and bridge maintenance for the Department of Transportation and Public Works. "However, even had there been no issues, we figure it still could not have handled that volume of water."

The force of the water sucked nearby trees into the pipe, further compounding the problem. The water then overflowed a nearby brook that usually runs little more than a trickle.

It was especially no fun for homeowners on Lacardy Drive who were dealing with flooded basements or for officials with the Department of Transportation and the town who were trying to clean up the mess as it happened. Removing the trees helped the immediate flooding recede. However, it was much longer before the situation returned to normal.

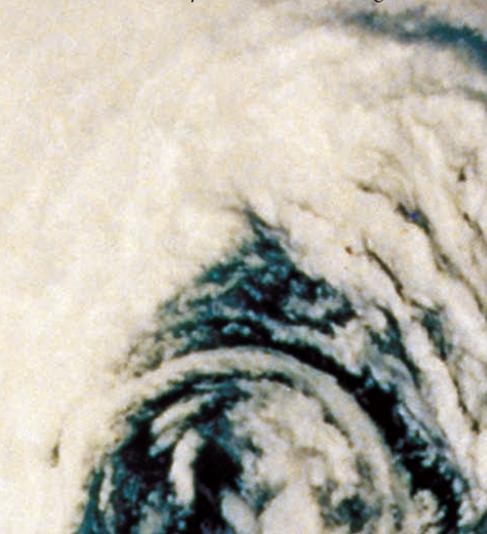
A section of the Trans-Canada Highway had to be closed for 17 days to allow for repairs to be made. As one of the main entrances to Charlottetown, the road normally handles close to 18,000 vehicles a day.

The storm also washed out one lane on Route 15 between Kilkenny Road and Black River Road. A stretch of road along Route 9 in Long Creek at the intersection of Route 19A was also compromised and replaced. The total repair bill exceeded \$1.5 million.

"I know people were pretty frustrated but there was nothing we could do," Evan says. "We virtually worked around the clock trying to get the repairs made as fast as we could."

Evan says they decided to replace the four-inch metal pipe with an eight-inch concrete pipe, which had to be laid in 20 sections.

"A concrete pipe can handle twice the water of a metal pipe of the same size," he says. "Next time, the system will hold — although I hope we never see heavy rainfall like that again."



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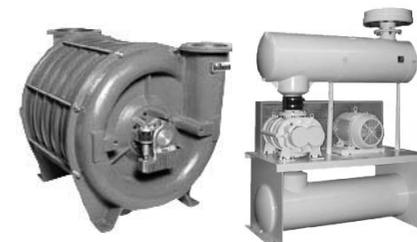
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Global water crisis promotes desalination boom

Worldwide growth in the use of desalination to produce a reliable supply of drinking water has risen sharply in recent years, according to recent statistics released by the International Desalination Association (IDA). Desalination technologies are being used more than ever to address the global thirst for new sources of potable water.

According to the 2008-2009 edition of IDA's Desalination Yearbook, published by Global Water Intelligence, the amount of global contracted (planned) capacity grew by 43 per cent in 2007, or 6.8 million cubic metres per day (m³/d), up from 4.7 million m³/d in total contracted capacity in 2006. This increase of 2.1 million m³/d is enough to supply potable water to more than 50 million people.

IDA reports that this growth trend continued in 2008. During the first six months alone, newly contracted capacity increased by an additional 39 per cent.

As of June 30, the cumulative contracted capacity of desalination plants around the world stood at 62.8 million m³/d. About 62 per cent of the newly contracted capacity is seawater desalination, with brackish water desalination representing another 12.2 million m³/d. Wastewater applications of desalination technologies for water reuse is growing fast, currently representing five per cent of total capacity.

The 2008-2009 Desalination Yearbook — which is based on data collected by Global Water Intelligence's DesalData unit in association with the International Desalination Association — also reports that the number of contracted desalination plants worldwide totalled 13,869 as of June 30, up from 13,080 in 2007.

"Water is becoming an increasingly precious commodity in many parts of the world. The newly released statistics indicate that desalination is playing an increasingly important role in addressing the global thirst for new water resources. In fact, for many communities, desalination provides the only reliable source of potable water," says Patricia Burke, secretary general of the International Desalination Association.

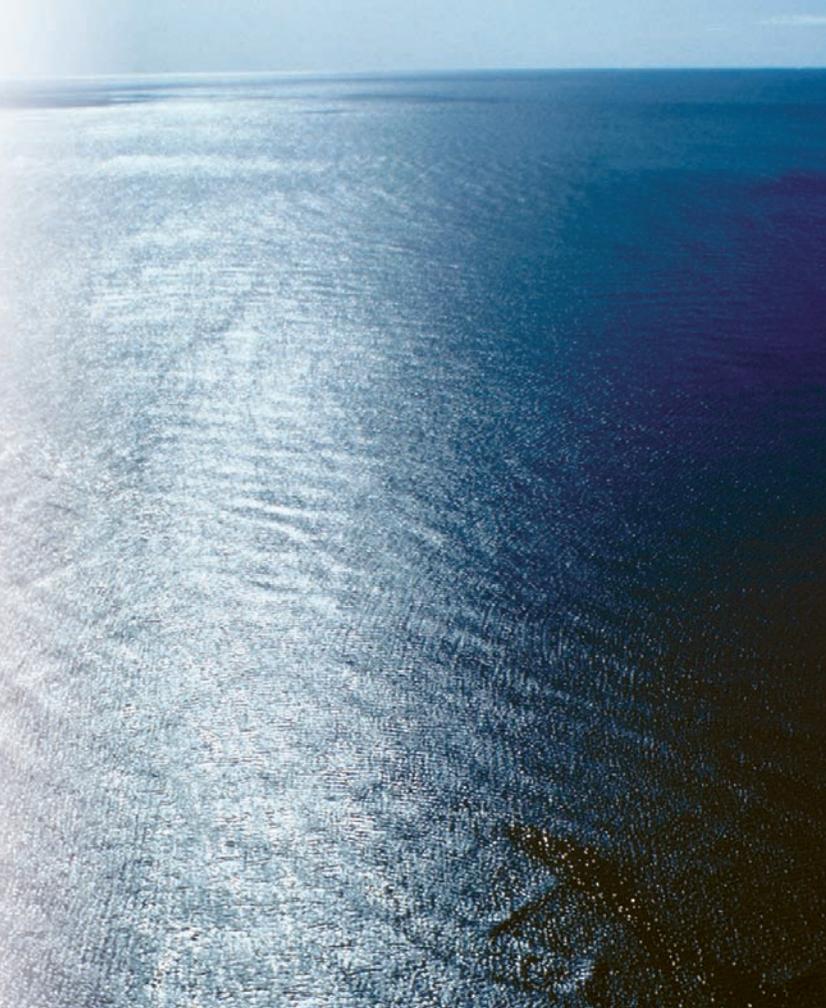
Burke cites statistics from WHO, the World Health Organization, which estimates that approximately 20 per cent of the world's population live in countries where water is scarce or where people have not been able to access the resources available.

The Desalination Yearbook also shows that plants are now being built on a new massive scale. Currently, the largest single desalination plant in operation is the 456,000 m³/d plant serving Fujairah in the United Arab Emirates. However, there are five other plants with capacities in excess of 500,000 m³/d now under construction in the Middle East region. The largest of these is the 880,000 m³/d Shoaiba 3 unit in Saudi Arabia. Later this year, the first 1,000,000 m³/d plant is expected to be commissioned in Saudi Arabia.

While not approaching this magnitude, large-scale desalination facilities are also being planned in the United States. For example, the recently approved Carlsbad, California, desalination facility will be the largest desalination plant in the western hemisphere, providing 50 million gallons (189.3 m³/day) of high-quality drinking water per day.

Christopher Gasson, publisher of Global Water Intelligence, says if you have a fast-growing population and limited natural water resources, sooner or later you are going to have to turn to the sea, and with climate change, it seems that "sooner" means "now".

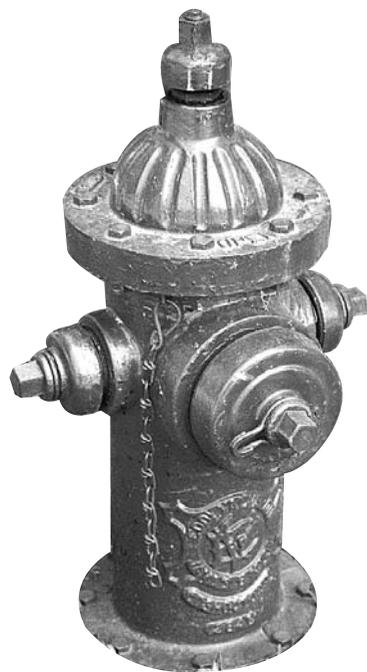
"The industry has made dramatic improvements in its energy consumption in recent years, and it has also aggressively addressed environmental concerns about the impact of desalination on marine life. This has helped open environmentally-conscious markets such as Australia, Spain and now the United States to large-scale desalination. If we see another dry winter in the Rockies, California will be the next market to take off. China is also on the verge of a very large expansion of its desalination capacity. Credit crunch or no credit crunch — people need water."



Newly released statistics indicate that desalination is playing an increasingly important role in addressing the global thirst for new water resources. File Photo

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Discoloured water back on tap for Pictou residents

■ BY THE NEWS

TRANSCONTINENTAL MEDIA

When Pictou residents turned on their taps in early December, discoloured water poured out.

Discoloured water has been a problem that has been plaguing the town for awhile, when innkeepers started complaining that guests couldn't shower or drink the water due to large amounts of manganese in it.

Finding a solution will continue to be a priority for council in the coming months, says mayor Joe Hawes, but before the town can fix things, it must determine the cause.

"We have hired an engineering specialist to review the situation and provide recommendations," says Hawes.

The town has kept

chemistry and well production records for decades now and the consultant is examining those records.

There are working theories on what may be the cause, says Hawes, including the fact that several town wells contain naturally present iron manganese. One of the current working theories is that the additional disinfectant that the town has been adding in recent years to address safe drinking water requirements set out by the federal government is impacting the manganese and creating increased discolorations in the water.

Compounding the problem for the town is the fact that the utility relies on 13 wells for its source of supply, versus a single surface water or lake setup that most water utilities draw from.

Hawes says that specialized tests are being done on the wells with the help of the provincial environment department.

The testing proto-

col requires collection of samples from both the wet and dry season to determine if the well water is under the negative influence of surface water runoff. The collection process involved over two years worth of collecting samples which were shipped to a specialized laboratory.

"We suspect we may need some form of additional treatment or the abandonment of certain wells and sourcing of new wells," he says.

New wells can be installed with ground pipe that eliminates the influence of surface water, but more

tests must be done.

Right now, says Hawes, there's no end to the discoloured water in sight.

"It would certainly be beneficial if I could tell our citizens that by a certain date in the near future our water discoloration problem will be solved, however that is not the case."

Once the testing is complete and the data is analyzed, the town can only then begin to create a plan and determine how much it will cost to fix the problem.

File Photo
Pictou residents look forward to the day when discoloured water will no longer run through their taps. Resolving this water quality issue is a current priority for the town.



Grand Manan receives gas-tax payment

The Village of Grand Manan in New Brunswick is making essential improvements to local infrastructure with its first payment under the Canada-New Brunswick Agreement of the Transfer of Federal Gas Tax Revenues and the Provincial Gas Tax Transfer Top-up Fund.

Greg Thompson, Minister of Veterans Affairs (on behalf of Lawrence Cannon, Minister of Transport, Infrastructure and Communities), and Rick Doucet, Minister of Fisheries (on behalf of Carmel Robichaud, Minister of Local Government), made the funding announcement this past fall.

The Village of Grand Manan received a first payment of a total of \$211,303 from the Gas Tax Fund (GTF), to which the Government of New Brunswick is adding \$54,620 for a total of \$265,923.

These funds are being used by the municipality for environmentally sustainable infrastructure

projects, including improving its wastewater facility and proceeding with the installation of a high energy efficient heating and cooling system at its multipurpose complex.

"This funding is helping the Village of Grand Manan to address important community infrastructure needs," says Minister Doucet. "It is vital for our government to continue improving and maintaining local infrastructure by partnering with the federal government and communities for the benefit of all New Brunswickers, including the residents of Grand Manan."

To receive its first payment under the GTF, the Village of Grand Manan submitted a five-year Capital Investment Plan for review by the province and signed an agreement with the New Brunswick Department of Local Government to implement the plan.



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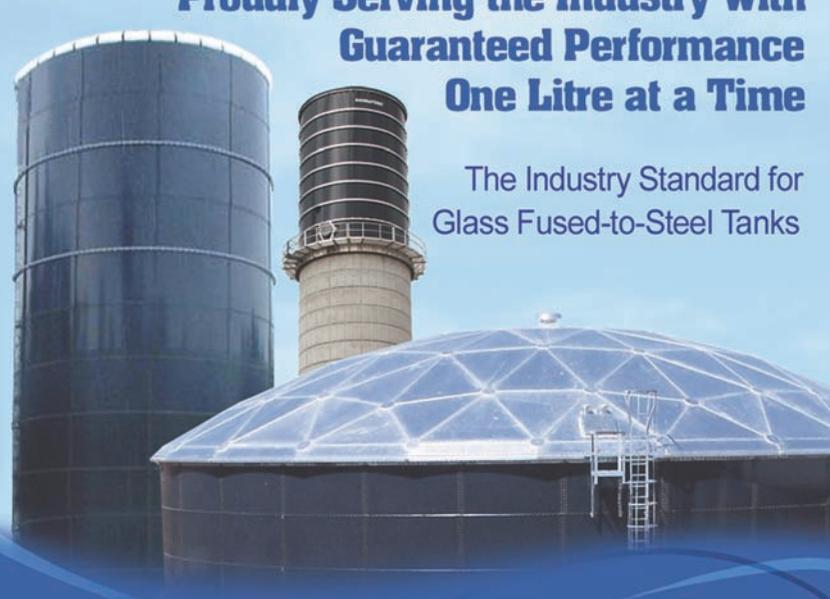
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Cape Sable Island explores options

■ BY CARLA ALLEN

THE COAST GUARD
TRANSCONTINENTAL MEDIA

A galley full of Cape Sable Island residents learned about sequencing batch reactors, recirculating sand filters and textile filters at the December 8th meeting of the Municipality of Barrington when representatives from CBCL Limited presented a powerpoint show on sewer options for the island.

Long roads with few houses on them pose an expensive problem in choosing the best system(s) for the project, which already has \$6.3 million in partial funding in place.

There are 32.5 kilometers of road with 713 residential commercial units (excluding the Town of Clark's Harbour which has its own system) on the island. That averages out to one unit per 90 metres, which is low density compared to typical service lots of 30 metres.

Willard d'Eon and Mike Abbott narrowed in on two options as a result of their pre-design investigation for the Cape Sable Island wastewater collection and treatment project.

As the cost to service the entire island at once is prohibitive, phase one was discussed for both option 5 and 6. The first phase for option 5 would see a plant located at Clam Point servicing approximately eight kilometres (200 units). The annual cost per unit would be \$690. First phase for option 6 calls for a recirculating sand filter treatment system to service Lower Clark's Harbour, the Hawk and South Side, approximately 8.6 kilometres. The annual cost per unit would be \$580.

The maximum annual cost for homeowners will be \$300 per unit as the Municipality of Barrington will be paying any amount over that figure.



Photo by Carla Allen

Mike Abbott, a wastewater treatment specialist with CBCL Limited, presented sewer treatment options to Cape Sable Island residents and the Municipality of Barrington council on Dec. 8.

Up to \$866,218 of gas tax funds will be designated for the project over five years as part of the Municipality of Barrington's \$2.1-million contribution, and \$2.1 million each will be provided from the provincial and federal governments.

Several residents expressed concern as to the potential location of sewer outfalls on the east side of the island and the damage that might occur to lobster-holding facilities and aquaculture sites.

The project has been proceeding in stops and starts for close to eight years. But now, with two sewer options on the table for municipal council, there is light at the end of the tunnel.

Pictou County communities receive funding for wastewater improvements

Residents in New Glasgow, Stellarton, Trenton, Westville, and the Municipality of Pictou will benefit from improved wastewater treatment thanks to a shared investment by the governments of Canada and Nova Scotia under the Communities Component of the Building Canada Fund.

Federal, provincial and municipal funding for two projects totaling \$3,175,200 was announced on January 11 in New Glasgow by Pat Dunn, Minister of Health Promotion and Protection, on behalf of Richard Hurlburt, Minister of Service Nova Scotia and Municipal Relations, and by Peter MacKay, Minister of National Defence, on behalf

of John Baird, Minister of Transport, Infrastructure and Communities.

The Town of New Glasgow's storm-separation project includes new storm sewers for 12 streets, servicing 300 households. The East River Environmental Control Centre pumping station project includes upgrades to 12 pumping stations that serve New Glasgow, Stellarton, Trenton, Westville, and other areas of Pictou County. The projects will help remove storm water from the sewer system to make the East River Environmental Control Centre operate more efficiently. It will also make the East River safer for recreational activities.

BORDEN-CARLETON STP PROJECT

FEATURE



Photo courtesy of Duffy Construction Ltd.

The community of Borden-Carleton has grown by leaps and bounds over recent years requiring its wastewater infrastructure to keep pace. Its sewage treatment system recently underwent a major overhaul.

Revamped lagoon will meet future needs of gateway community

■ BY ANDY WALKER

When the first vehicles began to cross Confederation Bridge in P.E.I. just over a decade ago, it marked the start of unprecedented growth for the community of Borden-Carleton.

This home to the world's largest bridge over ice-covered waters has seen the creation of a new school, the development of an industrial park, and the opening of a major packaging plant. There is also Gateway Village, a commercial/tourism complex that draws thousands of visitors to the community each summer.

Over the years, this steady development has put a significant strain on the town's eight-acre lagoon — a facility close to 30 years old — prompting a need for revamping.

"Ensuring it could support our future needs was essential," says community maintenance foreman Scott Campbell. "We certainly didn't want the lack of such a service to be a deterrent to development."

A community plan in 1997 indicated the lagoon could handle double the capacity at that time, but that was before the rapid growth in the industrial sector.

To help ensure the future, the community of 800 turned to the past. Marine Atlantic, the crown corporation that operated the ferry which linked the province to New Brunswick before the advent of the bridge, had two lagoon cells that were aban-

doned and available for use.

The abandoned lagoons, however, showed the presence of hydrocarbons. Luke Vanhul of Delcom Engineering in Summerside, project manager, said to solve the challenge, the larger of the two lagoons was cleaned out and the waste was placed in the smaller lagoon. The smaller lagoon was capped ensuring it would remain out of production. A prepared clay liner was then installed in the three-and-a-half-acre former Marine Atlantic lagoon and it was completely rebuilt. Once renovations were also made to the existing town lagoon, the two lagoons were joined. A building for the ultraviolet treatment system was constructed and it was officially commissioned in early January.

"With our brand new lagoon, we are in really good shape for the future," says Campbell.

The upgrade was a key component of the community's plan to separate its sanitary and storm sewer systems. In early 2008, the community received \$16,666 from the Gas Tax Fund towards a study to separate the two systems.

"Our community identified this project to develop a planning tool," says John Bernard, chairperson for Borden-Carleton. "The study should establish a clear direction for the process of the sanitary sewer, which when completed, will allow growth within the community of Borden-Carleton and the extension of the sewer collection system for residents."

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BORDEN-CARLETON STP PROJECT

About the community...

The Community of Borden-Carleton is a small but beautiful place at the foot of the Confederation Bridge. It was created as a result of the April 12, 1995, amalgamation of the town of Borden and the community of Carleton Siding.

In the 1820s, when the first Scottish settlers came, the community of Borden and surrounding area was known as Carleton Point. The community's role as "gateway" to the mainland was established in 1914 with Prince Edward Island's new year-

round rail service, which brought about the construction of piers for a ferry to the mainland. The first icebreaker crossed the Northumberland Strait in 1917 and Port Borden was incorporated in 1919, named for the Canadian prime minister of the day, Sir Robert Borden. The town was built around the ferry service, which provided employment to residents. The construction and subsequent opening, in 1997, of the Confederation Bridge linking Prince Edward Island with the mainland, marked the beginning of a new era for Borden-Carleton.

We are pleased to have been the General Contractor for this project

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Fast Facts:

- Located in the southeast of Prince County and bordering the Northumberland Strait at its narrowest point, Borden-Carleton is the principal "gateway" to and from New Brunswick.
- The community covers a land area of 12.94 square kilometres and has a population of 798 according to the 2006 Census of Canada.
- The core of Borden-Carleton is characterized by residential neighbourhoods, neighbourhood and tourist-oriented commercial development,

institutional and light industrial uses.

- The community's waterfront is a mixture of former industrial lands, left over from the building of the Confederation Bridge and now ripe for redevelopment, coastal vistas, residential developments and resource-based uses.
- Running through Borden-Carleton is the Trans-Canada Highway with ribbon development consisting of residential, highway commercial, and tourism commercial uses.

Source: <http://www.borden-carleton.ca>

UV system will stand test of time

BY ANDY WALKER

An ultraviolet treatment system installed as part of the lagoon system upgrade in Borden-Carleton should serve the community for several decades.

"The system itself is manufactured from stainless steel so not much can happen to it," says Robert Gillis of Atlantic Purification Systems (APS), which sold the Trojan Technologies UV3000 Package Treatment Plant to the community. "The bulbs have to be replaced every 12,000 hours of use but the system is very user friendly."

The UV system, which is an environmentally friendly, lower-cost alternative to chlorination and has a peak flow of 840,000 USGPD, is designed specifically for smaller municipalities. There are over 100 now in use in the Maritimes. The system went into operation in mid-December and was officially commissioned on January 9. The system, however, got its first workout long before that. It

was used to help disinfect the former Marine Atlantic lagoon for use as the new lagoon.

Robert Duffy of Duffy Construction, general contractor for the project, says there were no real challenges turning the UV building into reality. There were just a few delays due to the wet construction season. It was the wettest August in P.E.I. in over 50 years and there were also two heavy rainfalls in September.

Both Duffy and Luke Vanhul of Delcom Engineering (the manager for the \$1.4-million project) say they were glad they used a prepared clay liner rather than one they had to build themselves. The prepared liner was able to be installed in a quick four to five days.

Vanhul says Borden-Carleton had previously provided little in the way of treatment for its wastewater before it was discharged into Northumberland Strait so the UV system should make a significant difference.

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Delcom Engineering Ltd.

Congratulations to the Community of Borden-Carleton on the expansion of their Sewage Treatment Plant.

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