MPWWA

Maritime Provinces Water & Wastewater REPORT

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NOTE FROM THE CHAIR

Andrew Garnett
MPWWA Chairperson

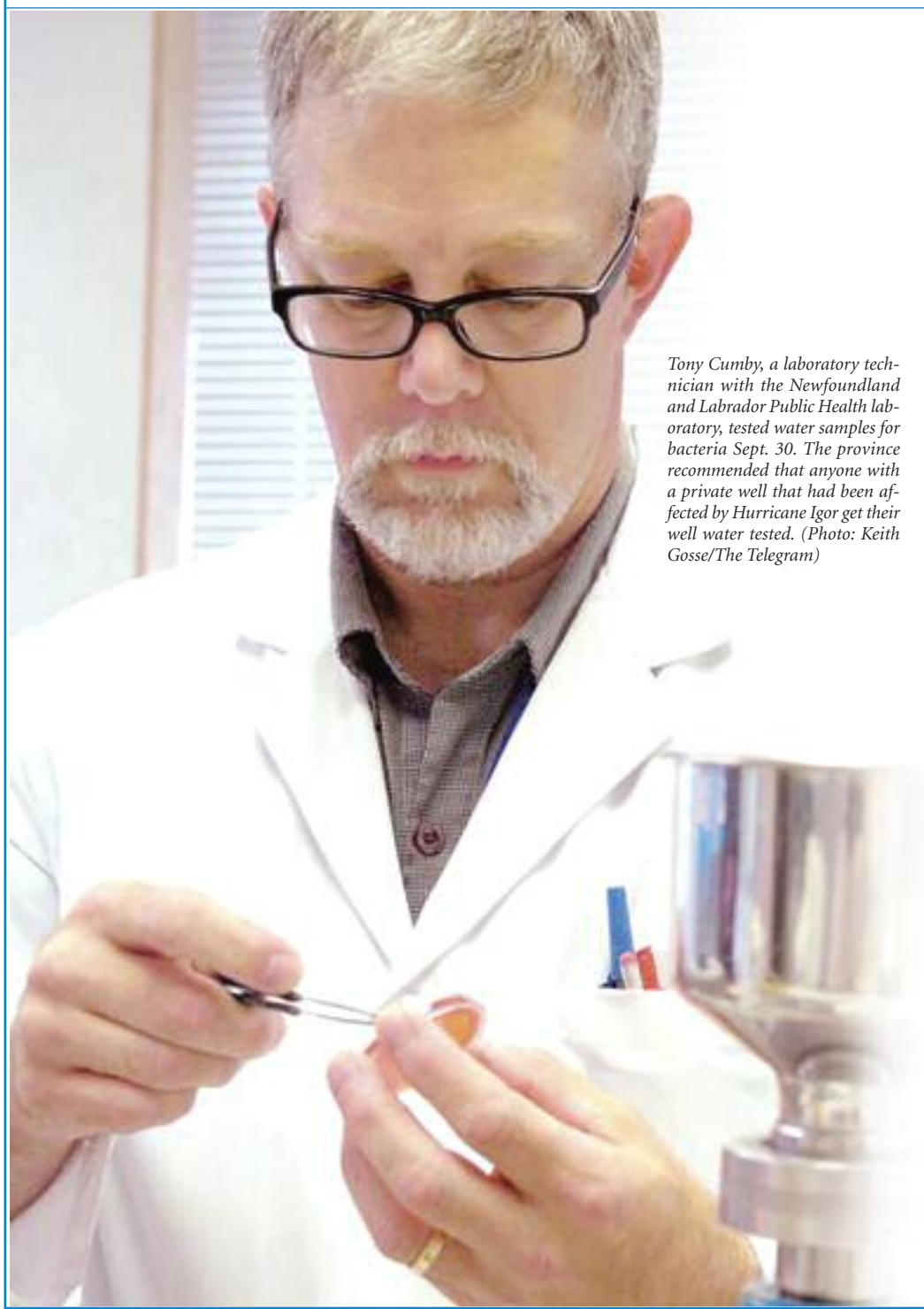
Well fall is upon us after a great summer. I hope you all had a good summer and a good construction season. Since fall is in the air that means that we are ready to turn it up a notch when it comes to training. Soon you will receive in a mail out a list of workshops we are preparing to offer throughout the Maritimes. I have said many times and will again, please take advantage of these workshops as they are a great way to gain knowledge and credits towards being certified.

I wanted to take the time to welcome Craig Gerrior to the executive. He will be the zone representative in zone 12 that is an at large member for the provinces of Nova Scotia and Newfoundland. Welcome aboard Craig and we look forward to working with you. Also, I want to wish Susan Tao all the best as she gets ready to have a baby sometime in late October. Susan is a valuable member of the executive and was our New Brunswick government representative. Good luck with the start of your family and hope to see you soon.

The executive will be meeting in October and will have a full slate of items to be discussed. We are going to begin posting the minutes of our meetings on our website so all of you can follow the business of our association throughout the year and just not at our annual meetings. Keep an eye on our website at www.mpwwa.ca for all the latest.

Well enjoy the fall and I hope to see you all at our next conference that is going to be held in Halifax in 2011. Take care!!

Andrew Garnett
Chairperson of the MPWWA



Tony Cumby, a laboratory technician with the Newfoundland and Labrador Public Health laboratory, tested water samples for bacteria Sept. 30. The province recommended that anyone with a private well that had been affected by Hurricane Igor get their well water tested. (Photo: Keith Gosse/The Telegram)

Moncton plans for $126 million sewage system

Moncton, Riverview and Dieppe are among the fastest growing areas in New Brunswick and that has increased the demand on the city's sewage line.

But a $126 million plan developed by the Greater Moncton Sewerage Commission includes the construction of a new treatment plant that will exceed federal guidelines.

A new sewage line, pumping stations, screening facilities and a tunnel under the Petitcodiac River are also part of the plan.

The first step is to build the tunnel, Commission Chairman Ronald LeBlanc told The *Times Transcript*. A new sewage line running through the tunnel will connect with a pumping station that will be erected in Dieppe near Victoria Avenue.

The newspaper said the plan designates close to $38 million for pumping stations, an outfall and screening facilities. Almost $6 million has been budgeted to complete the solid-waste facility located on Delong Drive.

Its balance sheet also includes $11 million for pre-treatment and improved solid screening, and $7 million to upgrade sewage and storm runoff separation.

A biological treatment facility that uses advanced technology and two new clarifiers will cost $49 million.

LeBlanc told the paper when the system is in place the sewage released into the Petitcodiac would be close to the tertiary level.

The commission would like the project to be financed between the provincial and federal governments and the city. If that isn't realized LeBlanc said it might be forced to triple its $150/year sewage bills.

Public information sessions about the plan were being scheduled for October in Riverview, Moncton and Dieppe.

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New reservoir a welcome addition

BY JASON MALLOY
TRURO DAILY NEWS

[Stewiacke, NS]—A new water reservoir is up and running in Stewiacke, (Nova Scotia) offering nearly five times the capacity of the former system.

Town council and staff held the official opening Thursday afternoon (Sept. 30) at the Windcrest Avenue site. Mayor Dereck Rhoddy said the new reservoir provides capacity to meet the town's future needs as it grows and address fire flow requirements.

"If businesses come, the answer will be, 'yes, we're open for business and we have enough capacity,' " he said following the official announcement.

The new 486,000-gallon bolted steel reservoir replaces the former 100,000-gallon reservoir, which was demolished once town staff was confident the new system was working well.

The $1.6-million project began in 2009 and was completed earlier this year.

It is the third project during the past nine years the town has completed, with assistance from the federal and provincial governments, to upgrade its water utility.

The process started in 2001 with $1.3 million worth of work that saw 3,082 metres of water main replaced and all new lateral services added. That project was completed in 2002.

Phase two, which started in 2003 and finished the following year, saw 1,025 metres of new water mains installed and a new 100,000-gallon steel storage reservoir added at the water treatment plant at the end of St. Andrews Street at a cost of $1.2 million.

Altogether, that is a $4.2-million investment in the town, which has an annual budget of about $2.5 million.

"Without federal, provincial and municipal partnerships like this Stewiacke would not be able to afford opportunities to enter into construction projects of this magnitude," Rhoddy said.

Colchester-Musquodoboit Valley MLA Gary Burrill commended the town for its vision and competency in getting the project complete on time and on budget.

Stewiacke's superintendent of public works Jeff Sibley, left, explains to Mayor Dereck Rhoddy how the new chlorine injector system works at the new water reservoir off of Windcrest Avenue. (Photos: Jason Malloy/Truro Daily News)

Studies to determine remedy for problem that caused giant sinkhole

■ NEW GLASGOW DAILY NEWS

[Stellarton, NS]—A study into ways to repair the $1-million sinkhole that formed on Foord Street (Stellarton, Nova Scotia) last year is still not complete.

The province launched a study earlier this year into the sinkhole, which formed last November near the base of the on-ramp at Exit 24, but town engineer Tony Addis says he's still waiting to hear from the Department of Transportation on the matter.

"The Department of Transportation commissioned an engineering study to examine the best way of remedying the problem," Addis said. "We're still waiting on that study and the problem is still there."

Initially, it was believed that the sinkhole was caused by a mineshaft collapsing deep underground, but after flooding appeared a few metres away near the off-ramp, it was determined the issue was really a cracked concrete box culvert.

The culvert had been installed by the province in 1963 when the highway was built to address water drainage off the highway and joined to an existing storm water sewer system. Dubbed "the tunnels," the system had carted storm water for about one-third of the town to the East River since about 1914.

The crack that formed on top of the box culvert, where it joins the tunnel system, allowed dirt to fall into the tunnel system, eventually clogging it completely and allowing very little water through.

Temporary fixes have been in place for months now – pumps that clear the water at a cost of about $20,000 a month – and the road has been repaved.

Because the infrastructure belongs to the province, it's been the town's position all along that the province should be responsible for the $1-million repair bill.

"It was my hope that something would have been done by now," Addis said.

The construction season is more than midway and fixing the problem is a long process that involves cleaning out the plugged tunnel system, which is more than 180 metres long, and will likely involve workers going down into the bowels of the town and digging out the dirt.

Hosing down the sinkhole. (Photo: Adam MacInnis/ The New Glasgow Daily News)

Then, the broken section of box culvert, and any other damages done to the tunnel system from the clogging, will need to be done.

Finally, the ground where the sinkhole was formed would need to be stabilized.

While not all of the repairs need to be done during the typical construction season – "some of that work could be done in the winter," Addis said – the town is quickly approaching the one-year anniversary of the formation of the hole on Nov. 2.

The sinkhole is still affecting life in Stellarton – a portion of the nearby Albion walking trail behind Sobeys head office has been closed due to unsteady ground caused by the sinkhole.

According to Department of Transportation spokesperson Steve Smith, the first phase of the study into the problem is already complete. That phase determined the pipe system is large enough to serve future development needs.

The second phase is underway to determine likely with video equipment whether the culvert and pipe system can be fixed or if a portion or all of it will have to be replaced.

There's no word yet on how long it will take for that phase of the study to be completed.

The water is currently being pumped away and drained off into the East River behind the Museum of Industry.

North Shore residents find water study easy to swallow

■ BY MITCH MACDONALD
THE GUARDIAN

Concerns among Community of North Shore (Prince Edward Island) residents regarding a long-term water plan have gone down the drain after a public meeting last Thursday (Aug. 19), says council chairperson Sandy Gallant.

Recommendations from a long-term water and wastewater servicing study confirmed nothing drastic will be done with the community's water plan, said Gallant.

"There's been a lot of anxiety in the community that we're going to do the extreme but with the considerations and recommendations, I think a lot of that anxiety was nipped in the bud, so to speak," said Gallant.

The recommendations from a study conducted by a Charlottetown-based engineering consulting firm, which run from as minimal as water monitoring to as large as a full-scale water servicing and treatment centre, will be looked at further by the council in September, said Gallant.

Gordon Shanks, a member of the advisory board which presented the study's findings, said the conclusion was council needs to begin monitoring the environment's water quality more closely.

"There are some issues but any issues that are evident now can be managed on a case-by-case basis. Basically what they're recommending is that council look at keeping ahead of the curve and get involved in monitoring the situation."

Implementing a public education program, periodic septic cleanouts and a management program to ensure septic systems are up-to-date and functional could all be part of the monitoring, said Shanks.

Regarding the water treatment centre, Gallant said, "the crux of the matter is build out."

While the community may need a water treatment centre someday, there is no rush in making the decision and the outcome will depend on when the population is large enough to warrant one, said Gallant.

"We're not in a crisis. Having the advisory board and study plan is being proactive and makes the community aware of what could happen."

Shanks also said the study confirms there's no crisis or requirement to build the centre.

"No one knows if or when that could happen. It could be 25 years from now, it coud be 50 years from now but the idea is if you monitor it you'll see well ahead if you've got some issues coming and then you can act appropriately."

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MPWWA PROFILE: *Craig Gerrior*

Every issue, the MPWWR shines a spotlight on an MPWWA member making a difference in the industry. Craig Gerrior is the focus of our October issue.

A Matter of Time

BY STEPHEN PATRICK CLARE

Craig Gerrior doesn't know where the time goes.

"There just aren't enough hours in the day," sighs the 34 year-old water treatment operator from his office in New Glasgow, Nova Scotia.

"Even though this facility is only ten years old and is relatively low-maintenance, there's still always so much to do."

Keeping busy, however, appears to work well for the area native.

After graduating from both St. Francis Xavier University in Antigonish and California State University in Sacramento, Gerrior jumped into his first job with the town of Truro.

"I was only there for a year as a Plant Operator," he ex plains, "It was a great experience, but I quickly learned that studying this stuff in school and working hands-on in the field are two very different things."

Since signing on in his home town eight years ago, he has kept his hands full.

"Along with overseeing the day-to-day operations of this place, I am now the treasurer for the union, and I also run my own company after-hours testing water samples from local residential wells," he says.

Being a new member of the Maritime Provinces Water & Wastewater Association presents even more possibilities for preoccupation. "I can see myself getting more involved with that in the coming years for sure."

When he does have a few spare moments, Gerrior plays hockey in the winter, golfs during the summer months or takes off on one of his many motorbikes and all-terrain vehicles.

"Yeah, as a matter of fact I took a hard corner on the bike yesterday and ran it right into the weeds," he laughs. "Like my family and friends here don't dig into me enough when there's a problem with the water, now I have to put up with their ribbing over this."

Much of that good-natured chiding comes from his in-laws, who are of Greek descent.

"They are wonderful people," he says of his wife's family, who own a couple of area eateries. "Although I am going to get really fat if I keep spending time with them. These folks are big on food."

And, as is the other European sentiment, they are also big on family.

"That one might be a little trickier to negotiate," he concedes with a smile. "At this point in our lives, we do not have any plans to have children, and it is looking like it might stay that way for awhile.

"Kids are a big investment in time," he continues. "And that's not something that either of us seem to have a lot of these days."

Still, the position of son-in-law is not without its perks.

"They have a beautiful coastal home in Greece and we make sure to get over there at least once a year. It is a great part of the world and you just can't beat the food, the weather and the culture. Hey, if I had my way, and there was a good job for me over there, I would move there in a minute.

"That is, if I had an extra minute."

Craig Gerrior

Sewage system success; Long-term care building among sites treating its waste in a natural way

■ BY GARY KEAN
THE WESTERN STAR

While the City of Corner Brook (Newfoundland & Labrador) has a long-term view of establishing sewage treatment, the new long-term health care building is already doing its share.

Anyone approaching the new building located behind Sir Wilfred Grenfell College will notice a large, fenced-off field of reeds.

It may appear to be a garden of some sort, but it is actually an engineered wetland designed to treat the sewage produced by the state-of-the-art building in a chemical-free manner.

The technology is actually a system provided by Abydoz Environmental, a firm based in Mount Pearl.

Similar systems are in use to treat municipal sewage in Stephenville, Appleton/Glenwood and Marystown, in addition to a number of single-dwelling residences throughout the province.

The sewage from the long-term care building first flows into three septic tanks where the solids settle. The effluent, or liquid waste, is then delivered to a series of treatment beds below the crushed stone surface of the engineered wetland, which is lined to prevent any leeching of effluent.

The roots of the reeds planted in the wetland help oxygenate bacteria which treats the effluent below the ground.

By the time the wastewater is returned to the City of Corner Brook's sewer system, about 97 per cent of it has been treated.

"This system is expected to last between 60 and 100 years and there is little maintenance, other than cleaning out the septic tanks every year," said Carlson Way, Western Health's support services manager for long-term care facilities in Corner Brook.

The engineered wetland is just one of the environmentally-friendly features of the new building which is hoped to help it achieve Leadership in Energy and Environmental Design (LEED) standard.

"The provincial government has mandated that all new building construction has to be built to a silver LEED standard," said Way.

"We are going for silver and possibly gold, depending on how our points work out."

The system is designed such that the warmth of the wastewater from usage such as the building's kitchen and laundry will be enough to keep the bacteria working during winter months when the reeds are dormant.

In summer, the system should be super-efficient.

Western Health will be installing informative signs about the system around the perimeter of the wetland, which does not create any odour and does not attract insects or waterfowl.

Stephenville Mayor Tom O'Brien said the 20,000-square metre engineered wetland his town began operating next to the airport about three years ago has worked like a charm. In fact, there are some plans to expand it.

"It is already handling the entire municipality,

The engineered wetland system at the new long-term health care facility in Corner Brook, Newfoundland. (Photo: Gary Kean/The Western Star)

but on days we get heavy rains, not everything passes through it and the (rain) water pools up, so we're looking at expanding on the reed beds," said O'Brien. "But we are very happy with it."

Christine Campbell, a professor of environmental science at Sir Wilfred Grenfell College said the facility in Corner Brook is great to see.

"Small-scale, constructed wetlands have been used successfully in other parts of the world and it is exciting to see this environmentally friendly technology being put into place in Corner Brook," she said. "Grenfell environmental students can now get a first-hand look at this system, gaining practical exposure to material covered in lectures.

"Once the wetland is functioning, it will give everyone in Corner Brook an idea of some options for sewage treatment in the region."

The Dunbrack Street Water Transmission Main Rehabilitation Project for Halifax Water, being conducted by Dexter Construction Ltd., involves sliplining the 1200mm diameter water transmission main with a new 1067mm diameter steel pipe. (Photos: Halifax Water)

Sliplining technology used in rehabilitation project

Dexter Construction Ltd. is conducting the $5.5 million Dunbrack Street Water Transmission Main Rehabilitation Project for Halifax Water. It involves sliplining the 1200mm diameter water transmission main—that's approximately 1.5 kilometres in length—with a new 1067mm diameter steel pipe.

Halifax Water said investigators found this section of the transmission main on Dunbrack Street had endured corrosion damage since it was installed 34 years ago.

Sliplining technology is being used for the rehabilitation project rather than the traditional open trench and pipe method. Halifax Water said using sliplining would reduce the cost of pipe installation, street reconstruction and minimize the impact on locals residents and businesses.

Sliplining involves inserting a new carrier pipe inside a larger existing one. A series of launch and retrieval pits must be excavated along the pipeline to allow the smaller pipe to be installed.

The pits are dug at pipe bends and in places where new valves and connections are needed.

After the excavation is completed a sliplining machine (a customized hydraulic-based pushing sled) is installed in the pit to slipline the steel pipe. Once the pipe is inserted and pushed through to the adjacent pit, crews begin fixing the street.

During the sliplining work the existing local distribution main was shut down to protect workers.

A temporary water system was installed along the Kearney Lake Road that provided water to residents. Halifax Water set up several hydrant to hydrant jumpers in the community that supplied enough water for daily consumption.

Dexter Construction Ltd. has been working on the project since June. Halifax Water said by September that new steel pipe had been installed from the Dunbrack Street and Kearney Lake Road intersection south to Ross Street and Farnham Gate.

The pipe is slated to be commissioned in October.

The Atlantic Canada Water and Wastewater Association has awarded the City of Fredericton and ADI Limited the Project of the Year Award for their work on the E. John Bliss Water Treatment Plant.

Water treatment plant receives ACWWA Project of the Year Award

The Atlantic Canada Water and Wastewater Association (ACWWA) has awarded the City of Fredericton and ADI Limited the Project of the Year Award for their work on the E. John Bliss Water Treatment Plant.

The award is given to a municipality or utility and their consultant to recognize outstanding projects in the region that demonstrate innovation and state-of-the-art technology in water or wastewater projects. The water treatment plant was in the award's Large Utility category that recognizes a utility with more than 25,000 customers.

The Director of Engineering and Public Works for the City of Fredericton was "pleased with the way this project was completed on time and on budget." Murray Jamer noted that the city was "also pleased with the recognition from the ACWWA."

"We're proud of the work we did on the E. John Bliss plant, and we're proud of the outcome," said ADI Limited President Paul Morrison. "It's an honour to accept this award, which reflects the level of quality and service we put into every project we are a part of."

The $8-million plant represents the largest single water and sewer construction project undertaken by the city in many years.

Continued on page 16

GreenBox will clean commercial wastewater

■ BY HEATHER JONES

A GreenBox is being developed by E3 Technologies, LLC in Athens, Ohio that will clean agricultural and commercial wastewater and produce hydrogen energy.

Using technology referred to as "pee power" the GreenBox will convert human and animal urea and ammonia to nitrogen, hydrogen and purified water.

E3 Technologies, LLC, plans to develop the "GreenBox" for wastewater remediation and clean energy production. (Photo: Ohio University Communications)

Dr. Gerardine Botte, a biomolecular and chemical engineering professor at Ohio University, invented the low-energy electrolysis process. She spent eight years researching the synergistic technology and founded E3 Technologies.

A university press release explained that the electric current in the GreenBox creates an electrochemical reaction that oxidizes urea and turns it into carbon dioxide, which is then sequestered in the electrolyte material in the machine. The device also produces hydrogen energy.

Botte is hopeful the invention can aid farmers, who often are faced with using or purchasing additional land to create lagoons for the large amount of animal waste from hogs or cattle subject to EPA regulations. A farmer with 2,000 hogs might need a GreenBox that runs on only 5 kilowatts of power—the same amount of power needed in an average home—to treat the ammonia waste, the researcher said.

E3 forecasts similar energy efficiencies for other uses: A commercial building with 300 employees would need a unit that requires only 1 kilowatt to operate, Botte said. The technology could reduce operational costs for eliminating ammonia from wastewater by 60 per cent.

Paul Campbell, an engineer with the New Brunswick Department of Environment, was awarded an American Water Works Association Life Membership for his long-time involvement with the association. Campbell has worked for the department since 1991 and has vast experience in the fields of water and wastewater management. He received the award at the Atlantic Canada Water and Wastewater Association's annual conference in Saint John. In the photo are from left: Campbell and ACWWA Chair Robert Gillis. (Photo: Communications New Brunswick)

County wants Amherst to take over water lines

■ BY STAFF
AMHERST DAILY NEWS

[Upper Nappan, NS]—A Loonie is what Cumberland County is proposing to pay Amherst's water utility for a pair of water lines in the municipality.

Appearing before the Nova Scotia Utility and Review Board (Aug. 5) to determine the ownership of the water line along the Smith Road and to the experimental farm in Nappan, the county's representative Bob Radchuck urged commissioner Kulvinder Dhillon to decide in the municipalty's favour and disburse more than $40,000 in a trust fund as it sees fit.

"The county requests the board order the town's water utility to take ownership of the Smith Road and Nappan lines," said Radchuck. "The county requests the transfer be done at a nominal price of $1 dollar for both lines. The county will absorb the original cost to build the lines and pay the outstanding debt."

Amherst's consultant Bill Gates said the water utility remains opposed to taking ownership of the Smith Road line because of its three-inch diameter while there's a discrepancy on how much compensation should be provided to the water utility for assuming ownership of the water line that runs to the experimental farm in Nappan.

If the utility and review board were to accept the county's proposal, Gates contends it could place the town's water utility into a deficiency and would not be fair to other ratepayers on the system.

While Radchuck is asking the utility and review board to set aside all previous agreements between the town and the county on the water lines, Gates pointed to one of the agreements and the fact the county agreed to assume ownership of the water lines.

Gates remains concerned with taking over the non-conforming Smith Road line because of the precedent it could set.

"It sets a precedent that could allow a developer or the county to install another line," said Gates, adding it could potentially cause enormous liability when it comes to replacing that line.

Gates said his firm is working in another municipality that's using a similar three-inch line and it's having problems in that it can't account where it's losing water in its system.

Town consultant Gerry Isenor said that while the county feels the line meets accepted standards that it may not be good enough.

"In the 1950s we were told cast iron would stand up forever and 40 years later we had to replace all of it because it failed," said Isenor.

Under questioning Dhillon questioned why the county installed a three-inch line on the Smith Road when a six-inch line could have been installed with minimal extra expense.

The county's director of public works Robert Streatch said the water line was put in only to provide domestic water to homes along the road and it was never intended for fire service, although it's the county's belief that there is sufficient flow to do so.

Streatch said that while the line doesn't meet the utility's standard, it meets accepted engineering standards for water and gas in northern climates. He said the county did agree not to add more customers to the line and at least one potential development was denied because of this.

Gates is also urging the utility and review board to order the municipality to pay outstanding fire protection bills relating to fire hydrants in the county. He said testing of fire flows in the county were properly done and cannot understand why the county is trying to seek additional information on the matter.

"The chief went to some length to get the information requested and applied a rigorous standard. The flows are adequate," said Gates, adding he doesn't dispute the county's right to verify the information. "The rates are adequate and well above the requirements."

Gates fears the situation being allowed to drag on so that both parties are before the board again in two to three years because the county hasn't paid the bill.

(Photo: Amherst Daily News)

Water woes continue… Council tells developer to keep original design

■ BY PAUL HERRIDGE
THE SOUTHERN GAZETTE

Council has rejected a request from the company hired to build Marystown's (Newfoundland & Labrador) new water treatment plant to redesign the chosen process.

Deputy Mayor Keith Keating acknowledged he and Public Works Committee chair Coun. Charles Wiscombe had met with G.J. Cahill in St. John's to discuss the issue, along with government officials and the town's engineering firm, NLCEL, during the most recent council meeting earlier this month (August).

Council passed a motion backing NLCEL's view G.J. Cahill keep the micro filtration system design selected from a trio of companies that had each tapped into the town's water source at Clam Pond in 2008, as part of pilot projects featuring different processes to determine the best one for the town.

Mr. Keating explained G.J. Cahill did not want to bring in the company responsible for the micro filtration pilot project.

"Basically, what we're saying is they got to stick with the original design that we did the pilot with."

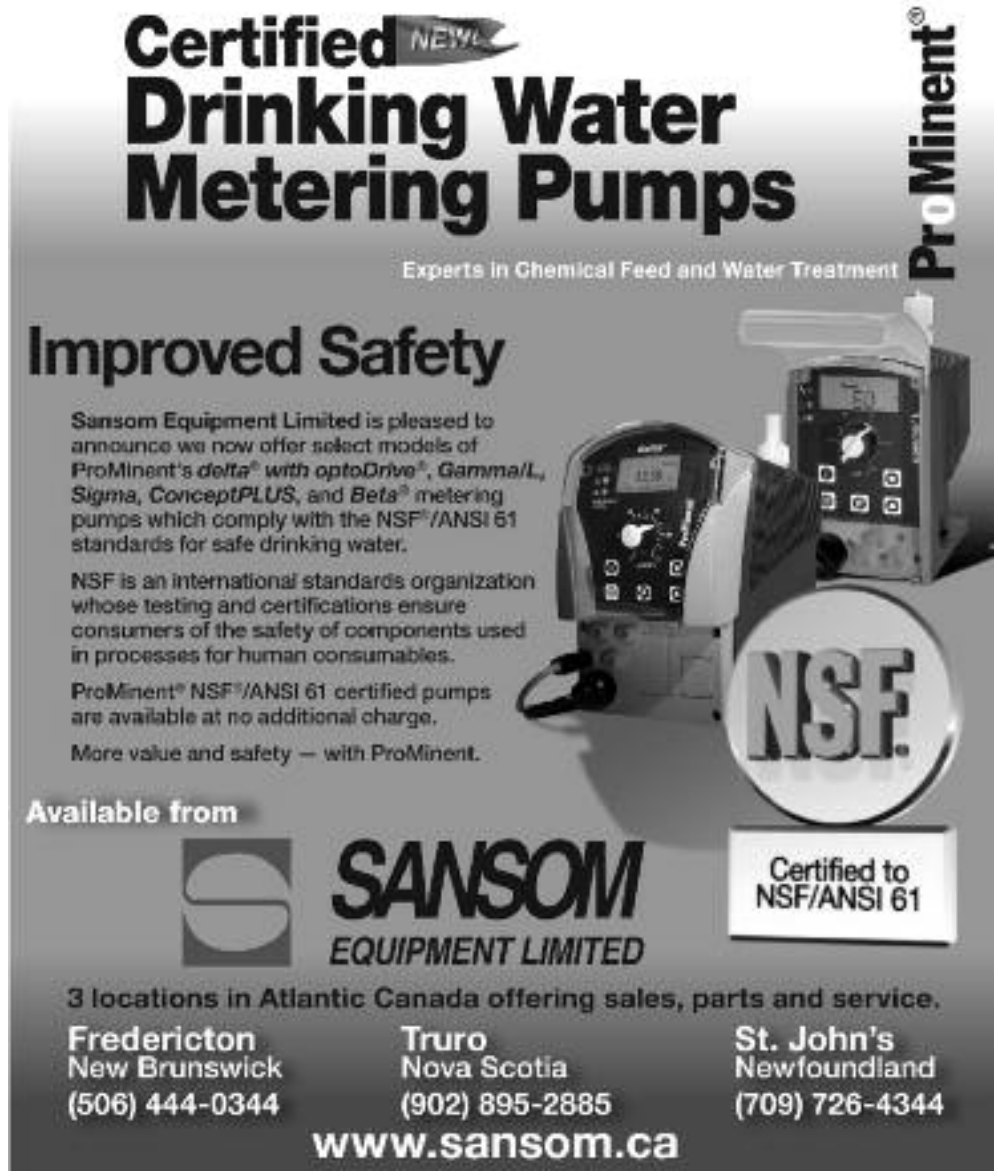
Mayor Sam Synard indicated the town put a lot of time and money into the pilot process to select the proper system.

"If you allow someone now to redesign all that, do you not make the whole thing moot? Why did you do it in the first place?

"Spend two years piloting something, then throw it out the door and redesign it? I think we need to stick to our guns and insist that we go with our piloting that we know would work for our area."

A pair of motions connected to the water treatment plant was also passed at the most recent meeting.

The first approved the purchase of leak detection equipment from Water Works Equipment and Supplies in St. John's for $12,129. The other granted permission to advertise to hire a water treatment plant operator.



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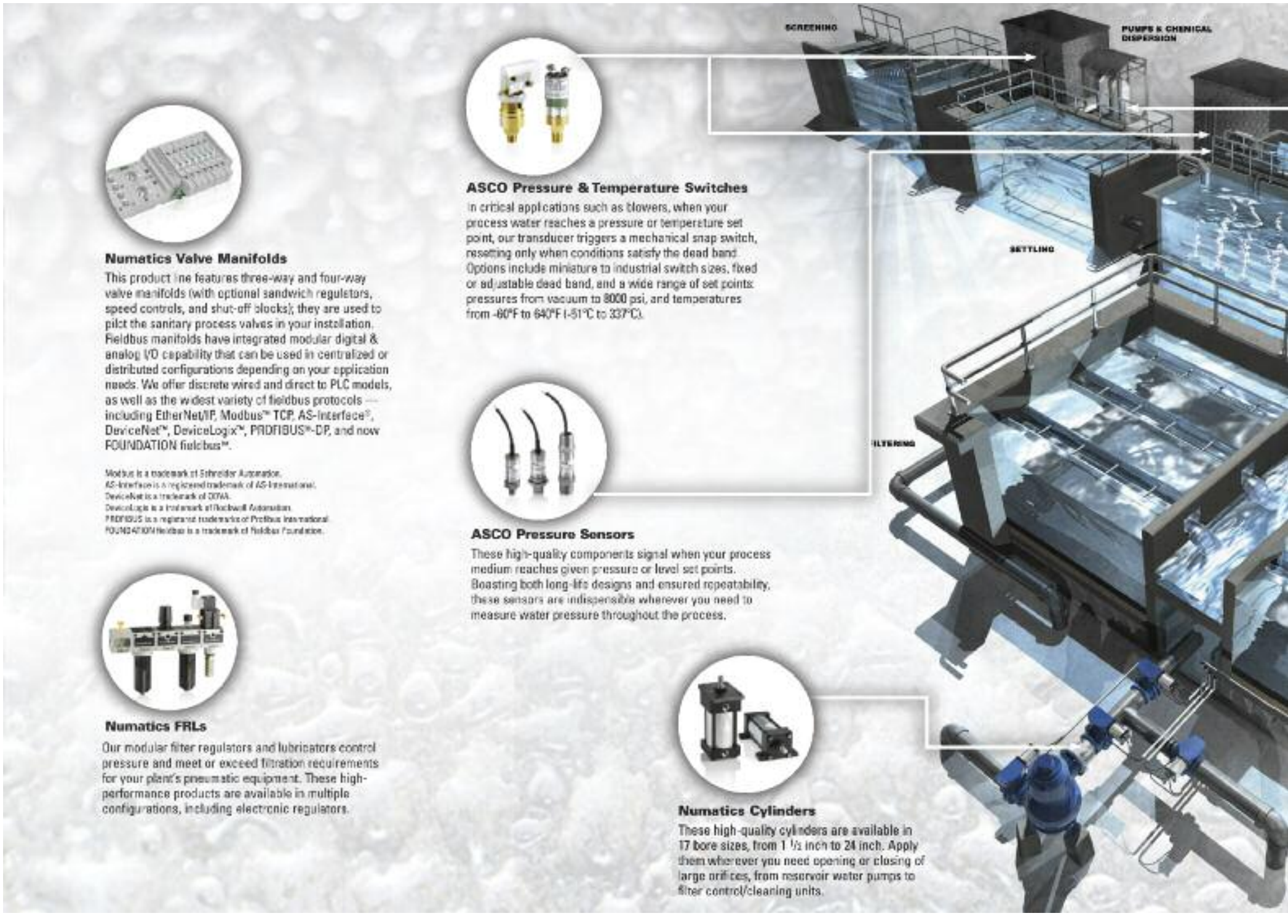

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Apply ASCO Numatics products in applications such as:

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Rock-solid reliability. The coils in ASCO solenoid valves last longer than the competition's. That's only one example of how our unequaled designs, manufacturing, and quality assurance contribute to unsurpassed performance and service life.

Exceptional availability. Our global distribution network ensures that nobody offers faster delivery or replacement. Many products are available via the ASCO Today and 5-Day shipping programs. Plus a wide selection of Numatics cylinders come with guaranteed 2-day shipping via the Numatics Express program.

Widest range. ASCO Numatics offers the industry's most comprehensive array of fluid automation products. We've got the pipe size, pressure rating, electrical enclosure, or corrosion resistance you need. And when a competitor's product needs replacing, consider us your one-stop provider.

Superior support. When you need help, we respond — fast. Our experienced distributors and sales force can be reached via phone, e-mail, or onsite visits for unequaled responsiveness. So ASCO Numatics can deliver the best technical support and service in the business.

The assurance of leadership

ASCO Numatics, a division of Emerson, offers comprehensive fluid automation solutions, including flow control and pneumatics products, for a wide range of industry-focused applications. The ASCO Numatics line comprises more than 50,000 valves, an extensive selection of air preparation equipment, and a comprehensive line of motion control products. The company is the world's leading manufacturer of solenoid valves.

Emerson (NYSE: EMR), based in St. Louis, Missouri, U.S.A., is a global leader in bringing technology and engineering together to create innovative solutions for customers through its network power, process management, industrial automation, climate technologies, and appliance and tools businesses. Sales in fiscal 2009 were $20.9 billion.

For more information please contact Maritime representative directly by calling 902-829-2504

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These ultra-reliable products include advantages such as low power, manual operators, high flows, and explosion-proof ratings. They're designed to operate at high cycles or for long periods of dormancy. Our three-way and four-way models provide ensured action to drive actuators and process valves in the demanding air- or water-driven applications where you need them most. For example, our pilot valves furnish excellent control of aeration, filtration, and backwash. They also control butterfly and ball valves used to prevent backflow damage to turbine blades when pump distribution stops.

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Our versatile selection of push-to-connect fittings provides instant connections and seals to help maintain optimum flow. Other high-reliability accessories include NPTF/inch tube fittings, metric fittings, metering valves, check valves, inline and right angle flow controls, and assorted brass fittings. They're recommended everywhere from airflow control panels to air vent shutters.

Water treatment plant on hold after bids come in over budget

■ BY CLIFF WELLS

THE WESTERN STAR STAFF WRITER

[Corner Brook, NL]—The city's (Corner Brook, Newfoundland & Labrador) $36-million water treatment plan is on its way to becoming a $65-million reality, or not.

Coun. Leo Bruce said at Monday's (Sept. 20) regular council meeting the tender for construction of the water treatment plant had come in way over budget so the recommendation was to reject the bids and start sharpening pencils to come up with a new plan.

The city had planned for the building, which is just one part of the plan, to cost in the area of $30 million. The low bid was from Brook Enterprises for $41 million, less engineering fees. The next lowest bid was Pomerleau at about $48 million. Olympic submitted a bid in the area of $51 million.

An agreement signed in May called for the entire project to cost $43 million in total, shared three ways between the city, the federal government and the province. The scope of the project was a treatment plant and a transmission water main and a few other items associated with the project.

The site preparation for the building on the city's southeast corner cost more than $600,000. There has been more than a million dollars worth of tenders awarded for equipment to go into the plant, such as ultraviolet light dosing equipment, plate settler gear and hydrated lime dosing equipment.

Bruce said council was being sensibly frugal in not awarding the tender.

"We're committed to water treatment," Bruce said. "It's something we have to do, but we can't do it at any cost."

The hope had been $30 million for the building, $36 million at the upper limit.

Now a way has to be found for the project to be affordable for the average taxpayer, he said.

"We're going to have to go back and re-scope, or look at other options," he said. "We just can't afford to do it at any cost."

Mayor Neville Greeley noted that the water transmission main running down West Valley Road and up O'Connell Drive to Georgetown Road is costing a lot of money and isn't finished.

"That's not a third complete yet," Greeley said. "We've spent between $4 million and $6 million.

"When all is said with that ($41 million) tender, we would be looking at a $36-million project becoming a $65-million project. That would cripple the city from doing any capital works for many years to come because the city's on the hook for all overages."

That would bring the city's share to nearly $40 million and that can't be done, he said. An even sharing arrangement would make the project more palatable, but it would still be a very expensive prospect.

The additional money going into water treatment would be money that could not go into paving roads, improving sports facilities and other projects.

"What happens next is we explore options for a design/build request for proposals," he said. "We're also looking at an opportunity for a 3P whereby a company would build the plant, operate the plant for a number of years before it's turned over to the city. That's a Public, Private Partnership."

Halifax Harbour "clean and safe"

Halifax Mayor Peter Kelly made his opinion clear Sept. 1 when he splashed into the harbour at Black Rock beach.

The mayor's objective was to illustrate his confidence that the water was clean and safe to swim in.

The harbour had been closed since Jan. 14, 2009 when an extended local area power outage caused flooding damage at the Halifax Wastewater Treatment Facility (WWTF) on Upper Water Street.

One of the two plant generators overloaded and shutdown and the facility was flooded with raw sewage.

Although flooding in the plant was limited to the basement and wet well areas, the equipment and systems in those sections required repairs or replacement.

The WWTF plant was closed and all the wastewater previously routed through it was discharged into Halifax Harbour.

Sewage began flowing through the WWTF plant in June and both Point Pleasant Park's Black Rock beach and the Dingle Park beach were open before Canada Day.

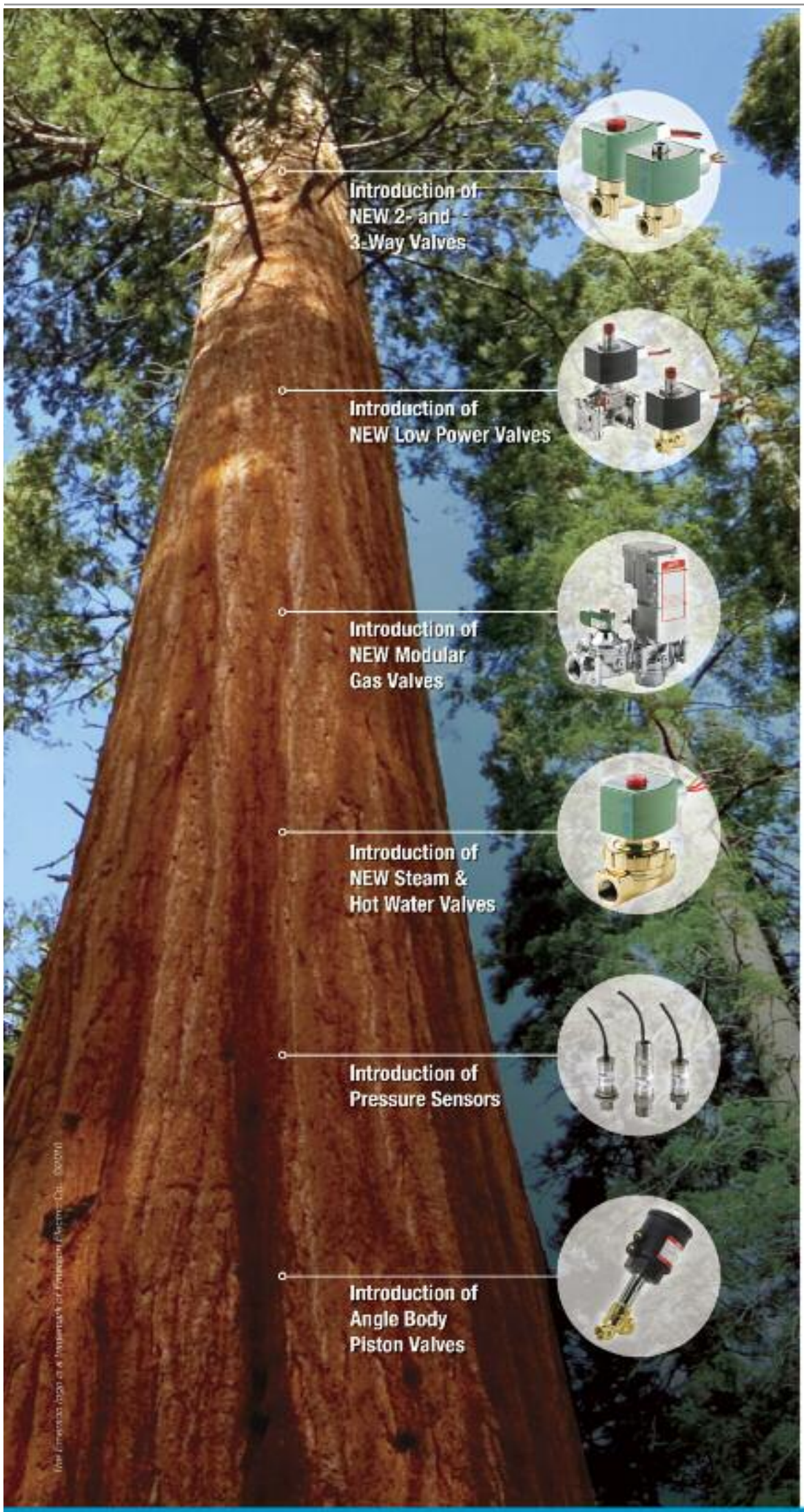
New booster station

Premier Shawn Graham, Senator Percy Mockler and Mayor Raymond Lagacé were on hand July 30 when a new water booster station officially opened in Atholville, New Brunswick.

The booster station will serve the village and three neighbouring communities.

The federal and provincial governments each invested $185,496, for a total of $370,992. The village provided $185,498.

Improvements to the Atholville wastewater system, scheduled to get underway this year, were also included in the project.



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Ministers tour Bay Bulls Big Pond Water Treatment Plant

Upgrades at the Bay Bulls Big Pond Water Treatment Plant were evident when federal Minister of State (Transport) Rob Merrifield and Newfoundland and Labrador Transportation and Works Minister Tom Hedderson visited Aug. 9

The $35 million project, due to be completed in March 2011, will provide drinking water to 160,000 residents of St. John's, Mount Pearl, Paradise, Conception Bay South and parts of Portugal Cove-St. Philips.

"The new system will improve plant operations, increase capacity by approximately 4.4 million gallons per day, and allow the potable water supply from Bay Bulls Big Pond to meet any changes to requirements for water treatment that may be prescribed under the Canadian Drinking Water Guidelines," Hedderson said.

The project involves the construction of a new building to house Dissolved Air Flotation (DAF) process equipment. This equipment will allow pre-treatment of raw water prior to treatment at the existing plant. Construction of the new building will result in safer, healthier and more efficient water treatment.

Under the Infrastructure Stimulus Fund, the federal government is contributing up to a maximum of $11.7 million in the project. The province is investing $12.8 million and the City of St. John's will provide $10.5 million.

Sewer system overcome in Grand Falls-Windsor

ADVERTISER

The water and sewer infrastructure in Grand Falls-Windsor (Newfoundland & Labrador) has been overloaded and the town's mayor is asking residents to reduce their water consumption.

Mayor Al Hawkins of Grand Falls-Windsor has released a statement to the media, stating his community is starting to experience problems with overloaded sewers, citing Main Street and Second Avenue as current problem areas.

"If the rain continues, this problem will no doubt spread to other areas," Hawkins stated, adding the town council is concerned with the amount of rain fall since Sunday night (Sept. 19).

In asking for residents to reduce their water consumption, Hawkins said it is a move to reduce the amount of water entering into an already overloaded sewer system.

"Also, residents who have sump pumps should ensure that the discharge hose is to the outside and not connected to a drain line as this is only pumping into the overloaded system as well," he stated.

The mayor's statement said town crews are responding to calls. "Unfortunately, there is not much that can be done when the system is overloaded," he wrote.

SPASH!!!!

On Sept. 22 vehicles had to navigate around the water gushing up from a water main pipe beneath Mount Bernard Avenue in Corner Brook, Newfoundland that broke shortly after 9 a.m. City Water and Sewer Superintendent Keith Costello said "the west side water feeder main split about 10 feet along its length from a valve to the T-joint where it originated." Water from the Curling watershed was available to local residents while the repair was completed. (Photo: Gary Kean/The Western Star)

Westville plans to raise water rates

■ THE NEW GLASGOW DAILY NEWS

[Westville, NS]—Westville's water rates may take a dramatic jump in the coming months.

A water study completed by G.A. Isenor Consulting Ltd. in association with W. H. Gates Utility Consultants Ltd. was presented to town council Monday night (Aug. 30) . The last study was done in 2004.

Without significantly raising what they charge for their water, Gerry Isenor said that the town would end up with hundreds of thousands of dollars in annual deficit for their water utility.

"It's been a few years since you've had a rate adjustment and it has a way of catching up on you," Isenor said.

The recommendation was to raise what they charge from $4.21 per thousand gallons to $5.69 per thousand for 2010/11. Isenor suggested that increase to $6.25 in 2011/12 and $6.75 for 2012/13.

The average residential homeowner would see their quarterly water bill increase from $75.42 to $103.76 the first year, $109.26 for 2011/12 and $114.98 for 2012/13.

While it is a dramatic increase for Westville, the rates are comparable to other towns in Nova Scotia.

"Many people in this province are spending $130 to $200 a quarter," Isenor said. "You're actually competing against some of the biggest guys."

Council approved to request the changes through the Nova Scotia's Utility and Review Board. If they approve the changes public hearings will be held before the decision is finalized.

Councillor Lynn MacDonald said it's good that this issue is being dealt with rather than the town continuing to go in the hole because of it.

"I think it's fortunate for us that (CAO) Scott (Fraser) decided to look at this when he did," she said.

Going up?

Some of Halifax's water pipes have served the municipality for over a century. In order to upgrade those pipes, Halifax Water applied to the Utility & Review Board to increase its rates.

The commission said the price of meeting new federal water and wastewater regulations and replacing its antiquated infrastructure could reach $1 billion by 2035.

If the application is approved, property owners paying $468 a year would see their water bills climb to $568.80 in October and $659.16 in April.

Halifax Water spokesman James Campbell told *The Chronicle-Herald* that the water bill increases would affect charges for storm and wastewater costs.

He said residential customers had not been charged for wastewater and storm water removal; industrial and commercial users had subsidized them.

A number of organizations oppose the water rate increase including four universities, the Capital District Health Authority and the Federation of Senior Citizens and Pensioners of Nova Scotia.

Urban Municipalities Committee delegates impressed with presentation

■ BY FRANK GALE
THE WESTERN STAR

[Stephenville, NL]—Delegates of the Urban Municipalities Committee were impressed with a presentation of the Abydoz Environmental waste treatment system in Stephenville (Newfoundland & Labrador) during a quarterly meeting Saturday (July 10).

Stephenville Mayor Tom O'Brien carried out the presentation of the system, which utilizes an engineered wetland of reeds to treat municipal sewage at the weekend gathering held at the Holiday Inn in Stephenville.

O'Brien explained the roots of the reeds planted in the wetland help oxygenate bacteria which treats the effluent below the ground, treating the wastewater by 97 to 98 per cent.

He said Stephenville's system is the largest of its type in Atlantic Canada and possibly the country. The Abydoz system is more popular in European and Scandinavian countries.

Keith Keating, committee chair, said a motion was made to ask Municipalities Newfoundland and Labrador to lobby the provincial and federal governments for financing to carry out a water conservation and cost analysis for the province.

"There has to be concern shown in this province about conserving water as currently there is way more water used than there needs to be," he said…

Water treatment plant receives ACWWA Project of the Year Award

The E. John Bliss Water Treatment Plant.

Continued from page 7

The City said the plant was a key component of its long-range strategy to keep pace with demand for high-quality drinking water as it grows.

The plant draws its water from three new wells in the Queens Square area. It is designed to use oxidation and pressure filtration technology with pH adjustment, similar to the existing William L. Barret Water Treatment Plant adjacent to the Victoria Health Centre on Smythe Street. The water leaves the Queens Square wells at high pressure and travels through a pipe system to the new plant for treatment, then it travels under Waterloo Row to Morrell park where it connects to an existing large water supply line.

In 2008 ADI Limited received the City of Fredericton's Development Committee Award for Architecture and Landscape for the E. John Bliss Water Treatment Plant.

The company was selected to prepare "source to tap" concept presentations, process selection, architectural design, process design, contract administration, construction services and commissioning.

An ADI press release said as the E. John Bliss Water Treatment Plant is part of the St. Anne Point Heritage Preservation Area the architectural design used scale, material, and detailing to compliment the heritage character of the district. Through dramatic use of roof line and thoughtful facade elements and landscape treatment, the building was distinguished as a civic landmark at the gateway to the city.

The plant is now the new home for the water treatment operators with amenities such as modern offices, training rooms, laboratory, and maintenance facilities.

Kippens to re-submit sewer proposal to government

■ **BY CHRISTOPHER VAUGHAN**
THE GEORGIAN

Although provincial financing won't be coming forward this year for a proposed sewer system, Kippens (Newfoundland & Labrador) council still considers the project a priority for the town.

Mayor Cator Best, Chief Administrative Officer Gerry Flynn, and MHA Tony Cornect recently (August) met with Municipal Affairs Minister Dianne Whalen to discuss the sewer project's funding application status with the provincial government.

A report was presented to the minister prepared by Councillor Debbie Brake-Patten, chair of the town's sewer project committee.

"It basically gives an outline right from when we started the initial application, which was in Sept. 2008, the necessity for the sewer system, [and] the plebiscite results that [found] the majority of people are in favour of it," said Councillor Brake-Patten of the report.

The report states waste from the region is currently transported to two privately owned locations, located in Codroy Valley and Pasadena, where it is dumped into lagoons. The councillor said it is uncertain what the future holds for these two sites.

"There's only two companies doing it now – what happens if they shut down their business or these lagoons become too full to handle any more?" she queried.

ALTERNATIVE CONSIDERED

While the provincial government informed the town that water quality is a higher priority for capital works funding this year, Kippens council has been encouraged to re-submit their application.

The government also suggested the possibility of the town utilizing a sewerage and sludge treatment system currently used in other parts of the province.

"We've decided instead of going with the Type II Batch Reactor style, we'd like to look at the wetlands that is in place in Stephenville right now and in Appleton," said Councillor Brake-Patten.

This type of treatment is an engineered wetland, whose advantages include a life system of 60 years, no electricity, no chemicals, low operating costs and little maintenance.

"I guess the maximum expense would be putting it there, but after that, it takes care of itself," said the councillor.

She added new applications to the government would be adjusted to include this new engineered wetland, which should prove satisfactory for those residents who questioned the initially proposed Type II Batch Reactor System.

Regardless of the system used, Councillor Brake-Patten said the town continues to grow and develop and council will try to do whatever possible to keep residents happy.

2010 is the final year for the town's $100 rebate for residential septic tank pumping. Council remains concerned as to whether residents will continue to pump their tanks to ensure all systems work at optimal efficiency.

No solution yet

When tropical storm Danny blew into Moncton, New Brunswick Aug. 29-30, 2009 it inundated the sewer system and left over 100 homes damaged. Among the hardest hit was the Hildegard subdivision in the north end of the city.

According to *The Times Transcript*, Hildegard residents are not impressed with Moncton's "band aid solution" to ensure the system does not overload again.

The city planned to set up 600 inlet control devices in storm sewers that would act like bottle caps when excess rainwater poured into the drains.

The devices and an $11 million solution—to build a twin seven-foot diameter runoff pipe—were discussed at a July City Council meeting.

Concerns were raised about the price tag and the volume of runoff water a second pipe would generate and its affect on other neighbourhoods.

Moncton head engineer Alcide Richard suggested other solutions be considered including a storage system for excess storm water.

Invisible health hazards

■ BY SHERRY MARTELL
TRURO DAILY NEWS

[Tatamagouche, NS]—There could be invisible health hazards lurking in people's homes says an official with Clean Nova Scotia.

Dick Beswick, an assessment officer of the organization's Environmental Home Assessment (EHAP) program in central and northern Nova Scotia, said many homeowners are not testing well water as recommended leaving themselves at risk to possible contaminants.

"A lot of people say, 'look it's clear. It doesn't have a taste,' so I ask 'have you ever had it tested?'" said Beswick. "You can't see bacteria or other chemicals that could be in the water."

He recommends for safety, people depending on well water should have it tested twice a year for the presence of bacteria and once every two years for the presence of chemicals.

Beswick is visiting homes in rural areas by request to conduct free, confidential assessments, which provide homeowners living on septic systems and private water supplies with information on proper management and environmental awareness.

He also provides information how to inspect furnace fuel tanks and lines.

"There is a need for this program," said the officer. "A lot of septic systems were made to an older standard and have been in place 30 or 40 years and this is an opportunity for Nova Scotian's to upgrade."

Homeowners who participate in the EHAP assessment are eligible for up to a $50 septic tank pumping rebate. Those who meet certain eligibility criteria may also apply for a grant of up to a third of the cost up to $3,000 from the Nova Scotia Department of Environment's Septic Repair Grant Program.

"We recommend pumping the tank every three to five years," said Beswick. "You'll either pay now or pay more later when you get solids in the field it can be an expense problem to fix."

The assessment takes about an hour and a half to complete and includes water conservation tools, environmentally friendly product samples, literature and professional advice.

"This is good for any homeowner, particularly a young family who may have just bought a house. This is good information so you don't damage your system," he said.

Dick Beswick shows how simple it is for homeowners to collect a water sample to test for possible contaminants. Beswick is an assessment officer for Clean Nova Scotia's Environmental Home Assessment program. (Photo: Truro Daily News)

"It also assures people who don't know what the starting points are on how they should deal with problems."

EHAP is available in Colchester and Cumberland County by calling 1-800-665-5377 to book and appointment.

Tax lowered as Pictou implements sewer charge

■ THE NEW GLASGOW DAILY NEWS

[Pictou, NS]—Homeowners in the Town of Pictou (Nova Scotia) will see their residential tax rate decrease this fiscal year.

Town councillors agreed Wednesday (Oct. 6) during a special meeting to set the residential tax rate at $1.99. The commercial tax rate is $4.40 which is the same as last year.

Pictou Mayor Joe Hawes said council agreed to decrease the residential rate from $2.06 to $1.99 so residents wouldn't feel such a financial burden when they also receive a flat tax for the new sewer system.

He estimated the sewer charge would run residents between $230 and $250, which would have to be paid by the end of the fiscal year. The flat tax charge will be issued around the same time as the tax bills.

Hawes said the commercial tax rate stayed the same while some other municipalities have increased their taxes since the business occupancy tax has been abolished.

Water Charter endorsed

By August premiers from across the country had endorsed a Canada-wide Water Charter.

The premiers agreed to keep the status quo on research and development and the acceptance of innovative technologies that propel water quality and conservation.

According to The Droplet, provincial ministers were ordered to use the Water Charter as a job guide.

NEW PRODUCTS

Diversified Plastics introduces MultiFab Technology

As the economy struggles, tax revenues shrink, and regulatory pressures increase, municipalities and original equipment manufacturers (OEMs) are being forced to overlook nothing in an effort to find lasting, cost-effective solutions to address the country's aging wastewater treatment infrastructure. Saving money on seemingly small components — like sprockets — can be vital in meeting tight project budgets.

Diversified Plastics, Inc., based in Missoula, Montana, has long been a leader in producing high-quality plastic parts for wastewater treatment plants. Over the past decade, the company's innovative design and fabrication processes have helped reduce costs and deliver sprockets that meet a range of specifications at competitive price points.

In July, Diversified Plastics took the next step in wastewater sprocket innovation by introducing MultiFab Technology, a proprietary process that creates higher performing parts at an even lower cost.

"Diversified Plastics is one of the few manufacturers in the industry who offers a full range of fabrication processes — machining, casting, injection molding and vacuum forming — under one roof," explains Brad Reid, Diversified Plastics president and CEO. "Our MultiFab innovation enables us to combine these processes and multiple resins to create a single wastewater sprocket with optimum performance characteristics for each component."

For example, a MultiFab drive sprocket for a grit collector might have a hard plastic polyurethane or nylon bore and keyway for maximum load and torsion strength. That component would be molded or machined. The sprocket's teeth would then be injection molded of a more abrasion- resistant UHMW — which has much better wear properties than harder resins. The components are then fused together to create a single, solid sprocket.

"MultiFab is a significant innovation. It reduces labor hours and material waste, while resulting in parts that deliver superior performance," Reid adds. "In independent, accelerated testing, MultiFab sprockets actually outperform single-material, single-process sprockets of resin or metal despite costing less to purchase and maintain."

Other advantages of MultiFab include the ability to custom fabricate sprockets to exacting specifications and the lower cost of shipping as compared to the traditional cast metal sprockets common to many wastewater facilities.

"With MultiFab Technology, we believe we've kind of reinvented the wheel for wastewater treatment. We're excited about the role this process can play in modernizing wastewater facilities, nationwide," summarizes Reid.

For a recent case study on the application of Diversified Plastic's MultiFab Technology for the Deer Island Wastewater Treatment Plant near Boston, visit http://www.diversifiedplastics.net/index.php?page=case-study-wastewater <http://www.diversifiedplastics.net/index.php?page=case-study-wastewater> .

A family-run business, Diversified Plastics, Inc. has been solving problems and creating engineering solutions for industries including wastewater treatment, lumber, agriculture and food processing since 1976. From producing its first engineered plastic wear strips for lumber and pulp mills for the area around Missoula, Mont., it has grown to become a North American leader in plastics engineering and fabrication. More information on the company, its capabilities and industries served can be found at www.diversifiedplastics.net

Watson-'s new SPX100D hose pump for challenging sludge applications.

Compact high flow pump for sludge

Watson-Marlow has introduced its new SPX100D hose pump for challenging sludge applications. Using no valves, seals or rotors in the product stream, the SPX can run dry and handle high grit or air entrained sludge with ease. With flows up to 400 gpm, the SPX100D is ideal for scum, thickener underflow, belt press or centrifuge feed. With a self-loading design, hose replacement is quickly achieved where the pump sits. There is no drive realignment or off-site rebuilding of the pump required, significantly reducing maintenance cost.

Advanced hose technology enables the SPX to pump corrosives,

abrasives, shear sensitive fluids, high viscosity fluids, high-density fluids, large solids and long stringy materials. Peristaltic hose pumps are virtually maintenance free with no expensive seals to replace, no check valves to clog, and no rotors and stators to wear out. Both pump rotors are always fully and centrally supported by their own high strength bearings. Unlike other pump types, the highly abrasive materials do not affect pump life. Materials are fully contained within the hose element and don't come in contact with the moving parts of the pump, preventing abrasive wear.

The SPX100D also provides easy access to shims and shoes, and the shaft design ensures fail-safe operations. Discharge pressure reaches up to 232 psi and operating speeds reach up to 30 rpm for continuous use and up to 38 rpm for intermittent use.

Every Watson-Marlow peristaltic pump is an inherent metering pump with repeatability at 99.5%. Many models include integral digital drives with PROFIBUS or SCADA control in NEMA 4X washdown enclosures. These self-priming pumps accommodate flow rates from 0.1 microliter to 350 gpm, and are extremely durable, withstanding pressures up to 232 psi. There are no internal universal joints, valves, dead corners, or glands to impede flow and these pumps are reversible for back flushing lines. They can also run dry indefinitely without damage and provide up to a 30' suction lift.

The Watson-Marlow Pumps Group is the world leader in peristaltic pumping solutions. For over 50 years its Watson-Marlow, Bredel, Alitea, Flexicon, and MasoSine brands have been solving fluid handling problems using state-of-the-art pumping technology.

For more information about Watson-Marlow, call (800) 282-8823, email: support@wmpg.us, or visit www.watson-marlow.com.

Stinky air has locals holding noses as officials try to find source

BY HARRY SULLIVAN
TRURO DAILY NEWS

[Truro, NS]—Oh-mi-gawd, what is that awful stink?

That is a reaction common to many Truro-area residents this summer, thanks to a very smelly odour that has been wafting through the air of late. (mid-September)

And while local authorities know the stench is emanating from the Central Colchester Waste Water Treatment Facility in Lower Truro (Nova Scotia), they do not know the actual origin of the smell's source.

"We know there's something causing us problems but we haven't identified it yet," Colchester County Mayor Bob Taylor said, of the ongoing mystery that has been plaguing residents since at least mid-summer.

"We've certainly been getting some calls," the mayor said.

"We're looking at a lot of different things here to try to get it under control."

What is certain, Taylor said, is that there has been no equipment malfunction at the treatment facility.

"There's nothing broke," he said, contrary to some rumours circulating in the community.

Green Oaks resident Carol Bushie, who drives through the area between home and Truro, said it is hard to actually define the unpleasant odour.

"I don't know if there is a word for it," she said. "It's rancid at times. It's just gross. You roll your windows up when you go through here recently. It's not very pleasant. I can't imagine living here with that smell constantly."

The thing is, the smell is not constant but, rather, comes intermittently, which is adding to the mystery.

Two Sequence Batch Reactor tanks at Central Colchester Wastewater Treatment Facility in Lower Truro, Nova Scotia are constantly in operation, with each containing 4.5 million litres (one million gallons) of aerated liquid waste. (Photo: Harry Sullivan/Truro Daily News)

"It's not that often that you do get it," said neighbouring resident Don MacKenzie. "I'd rather it wasn't there but I wouldn't say it's real bad."

Kent Road resident Graham Loughhead, who described the smell as "like sulpher," also said it doesn't last long but when the odour is present, "it's not too pleasant."

"You've got to keep your windows closed if you want to keep it out," he said.

Taylor, who said it would be unfair to place blame until a source is detected, said officials are nonetheless looking at the effluent from local industry and other operations in an effort to pinpoint just what it is.

"We understand there's been some things going into the system that's been causing us problems, not only with the operation of the plant sometimes but with an odour that we haven't had for ages," he said.

"We're trying to detect what is coming in to cause these problems ...

It might not be industrial but your first thoughts are, 'Yes (it is)."

Taylor said a public meeting is being planned for within the next couple of weeks so people can ask questions and also to serve as education session for what is permitted in the waster water system.

And from a more long-term perspective, facility expansion and upgrades to the screening and filtering systems, as well as the treatment of leachate at municipality's landfill site, are also in the works.

In the meantime, Taylor said, citizens' complaints are being taken seriously.

"We know they're legit ... We're not making any excuses," he said. "Trust us. We don't like this and we're doing everything we can to eliminate it. But it might take awhile."

Dinosaur bones discovered in sewer

There was an unexpected delay when the Quesnell Heights sewer was being dug in August.

Aaron Krywiak and Ryley Paul were excavating 90 feet below the Edmonton neighbourhood when they discovered strange rocks. Then they found a 10-centimetre serrated tooth.

The rocks turned out to be 70-million-year-old dinosaur fossils. Paleontology experts from the Royal Tyrrell Museum and the University of Alberta determined the bones were probably from two dinosaurs. One, the Albertosaurus, was a carnivorous cousin of Tyrannosaurus Rex. The other was a duck-billed, plant eating Edmontosaurus.

Researchers worked with the construction crews sifting through dirt as the tunnel excavation continued.

Hooked up

Residents of two Beaver Bank subdivisions, who have incurred dry wells and low water pressure for three years, will be hooked into the Halifax Regional Municipality's water supply in October.

According to *the Chronicle-Herald*, the price tag for the service is almost $18,000 per household and hook up fees.

While Halifax Water donated over $400,000 to help the residents no funding was available from the provincial or federal governments.

The hook up required 11 kms of pipe. On Sept. 24 close to 9.5 kms had been laid.

Monitoring groundwater

Streams in Halifax and Amherst, Nova Scotia have helped scientists demonstrate a new method of monitoring groundwater contamination.

According to *the Chemical & Engineering News*, monitoring groundwater in cities usually involves collecting samples from observation wells that can be time consuming, expensive and may include land ownership issues.

A new study utilized urban streams on public land that would contain contaminated groundwater discharge.

Researchers drilled "a steel tube attached to a drive head" into the sediment at the bottom of the stream. Water was pumped into collection tubes through openings in the drive head. Then it was analyzed.

Multiple samples provided scientists with a complete survey of the area.

Portable desalination units developed

■ BY HEATHER JONES

Researchers at the Massachusettes Institute of Technology and their colleagues in Korea have developed small, portable desalination units that can produce 99 per cent pure water.

Powered by solar cells or batteries the postage-stamp size desalination units also remove bacteria, viruses and other contaminants from salt water.

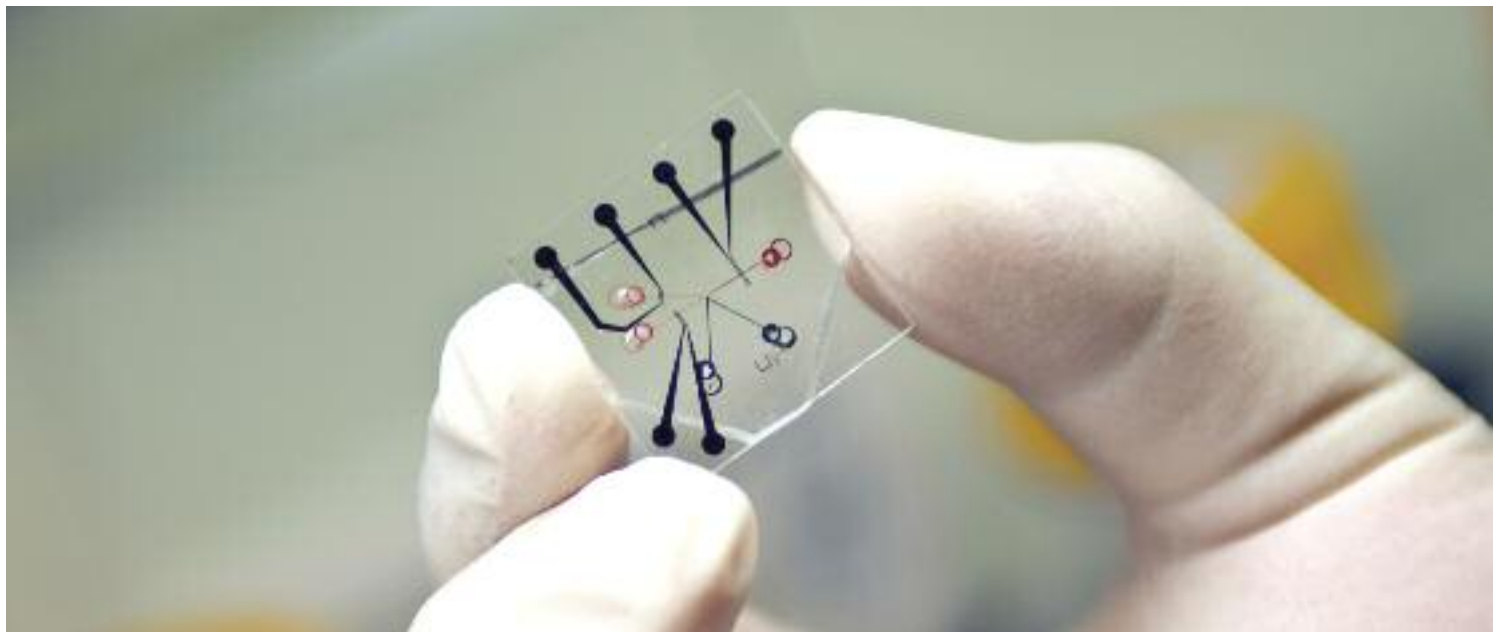
The unit works at a microscopic scale using ion concentration polarization. The process was described in a MIT press release as "a ubiquitous phenomenon that occurs near ion-selective materials (such as Nafion, often used in fuel cells) or electrodes."

('Direct Seawater Desalination by Ion Concentration Polarization', by Postdoctoral Associate Sung Jae Kim and Associate Professor Jongyoon Han (MIT) and Sung Hee Ko, and Kwan Hyoung Kang in Korea, was published in March 2010 in Nature Nanotechnology.)

While reverse osmosis filters out salt by using membranes, it needs strong pumps to keep the high-pressure level necessary to propel the water through them. Salt and other contaminants can block the membrane's pores and disrupt or foul the system.

The new micro-desalination unit separates "salts and microbes from the water by electrostatically repelling them away from the ion-selective membrane in the system"—the water does not have to flow through a membrane so there is no need for high pressure and no problems with fouling.

While micro-desalination units require slightly more electricity than reverse osmosis, researchers say, "there is no other method that can produce small-scale desalination with anywhere near this level of efficiency. If properly engineered, the proposed system would only use about as much power as a conventional light bulb."



In the photo is a single unit of the new desalination device, fabricated on a layer of silicone. In the Y-shaped channel (in red), seawater enters from the right, and fresh water leaves through the lower channel at left, while concentrated brine leaves through the upper channel. (Photo: Patrick Gillooly/MIT)

While a single unit can only process a minute amount of water, researchers plan to fabricate an 8-inch-diameter wafer that holds 1,600 units. Self-contained and driven by gravity, it would produce close to 15 litres of water an hour. "Salt water would be poured in at the top, and fresh water and concentrated brine collected from two outlets at the bottom."

The MIT press release says, "Since the separation occurs electrostatically, it doesn't work for removing contaminants that have no electric charge. To take care of these remaining particles — mostly industrial pollutants — the researchers suggest the unit could be combined with a conventional charcoal filter system, thus achieving pure, safe drinking water through a single simple device."

A single micro-desalination unit was tested on a Massachusettes beach. Seawater was deliberately contaminated with human blood, protein and small plastic particles. The end product was 99 per cent pure (uncontaminated) water.

Researchers plan to create a 100-unit device and then a 10,000-unit system. They think it will take them two years to produce a commercial product. While there are many potential applications for the new desalination system, they believe it would be invaluable in emergency situations like the aftermath of the earthquake in Haiti or Hurricane Katrina.

(Grants from the National Science Foundation and the SMART Innovation Centre funded the research work.)