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The official magazine of water professionals across Western Canada

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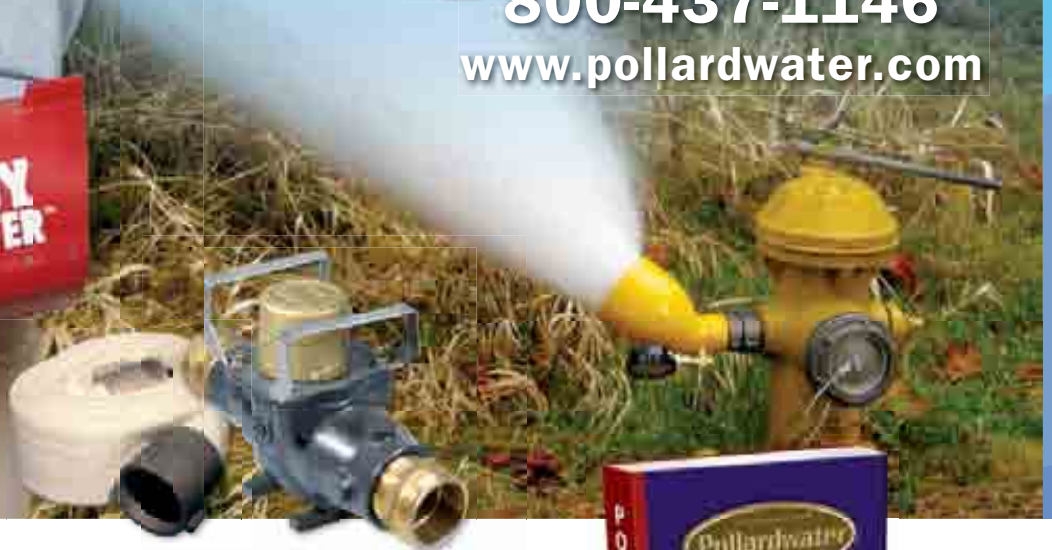
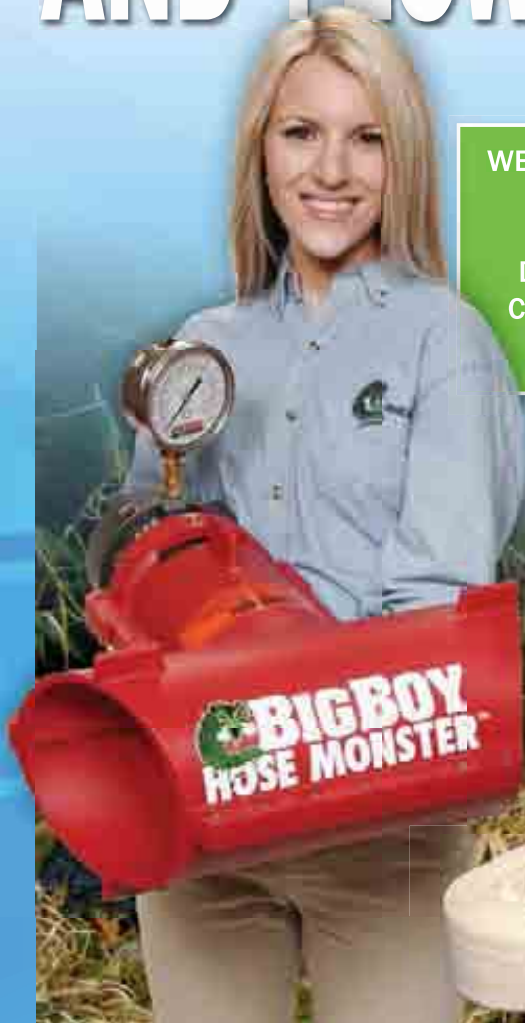
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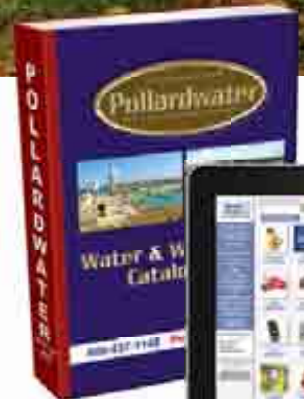
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Western Canada WATER

The official magazine of WCW professionals across Western Canada

Working together for water

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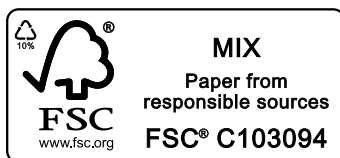
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The articles published in *Western Canada Water* do not necessarily reflect the opinion of WCW.

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Adapting to changing times

Timo Jansen, WCW President

As water professionals,

we are continually adapting to developments that promote quality in the water industry. For example, information technology, referred to as "IT," has enhanced our ability to identify issues and resolve problems in a more timely way than what would have been standard practice 20 years ago. Controls, alarms, and monitoring devices are available to improve the level of service for water system operations. Electronic data collection and reporting provided by operators not only fulfill the regulator requirements but also assist with asset management. Electronic asset management tools provide a history of infrastructure events, aid in establishment of maintenance programs, and help in budget development. There are many electronic tools water professionals are adapting to meet the growing and changing demands of the water industry.

To adapt to change in the industry, we must collaborate to share Best Practice information and our approaches to water management. As a Manager of Major Projects for SaskWater, a Commercial Crown water utility based in Saskatchewan, I am involved in providing least cost, most effective, long-term solutions for large industrial clients. Staying current with changing water management standards can be challenging, to say the least. One experience I had was during a project bid process. A supplier called to question the service connections on the transmission works that were specified in the tender documents. As a water professional with over 30 years of experience, I realized that I may have relied solely on past practice rather than exploring innovative systems methodologies. The supplier indicated that the industry had progressed from that which was specified to a more environmentally friendly, reduced cost, readily available solution. Developments in the water industry are evolving to address problem situations. So, we worked together to provide a solution for an outdated



methodology. The specifications were adjusted to reflect the industry standard – a benefit to the water industry. Adapting to change can sometimes be challenging as well as create opportunities.

To illustrate how change impacts the evolution of Western Canada Water, I invite you to consider the phrase "knowledge obtained from whence you came propels you into the future." It is important to understand where you came from to know where you are going.

WCW was formed in 1948. The first Western Canada Water and Sewage Conference was hosted in September 1949 at the Hotel Saskatchewan in Regina. The conference currently follows



a similar rotation as was introduced then with the following year's event hosted in Manitoba, the next year by Alberta, and then returning to Saskatchewan. The conference cycle makes perfect sense, hosting the conference in the larger centres capable of bringing many water professionals together. Since 1948, the organization has adopted a new name and expanded to include the operator organizations from the Northern Territories, Manitoba, Alberta, and Saskatchewan. One conference tradition is to pass on the responsibility of Presidency to the person representing the host province of the next year's conference. Two symbols are used in this ceremony: the Presidential Chain of Office and the gavel. The Chain of Office links are full of names of Past Presidents with little room for expansion and is now showing wear and tear. Western Canada Water now has an opportunity to consider how best to represent the change in office while respecting the past. Consideration is being given to retiring the Chain of Office and putting it on display at the Conference Gala while introducing a new symbol in Regina where it all began in 1948. More details will be provided at this year's Conference.

The Western Canada Water Conference Organizing Committee is focused on finalizing the details for the September Conference. The committee is looking into ways to reduce paper use at the Conference with use of electronic systems. New developments include the Honourable Ken Cheveldayoff, accepting an invite to address the delegates at the Gala. Cheveldayoff is Minister responsible for Saskatchewan Ministry of Environment, Water Security Agency, and SaskWater.

The success of the Conference is aided by the sponsors. City of Regina, WSP, AECOM, and SaskWater are the confirmed Oceans level sponsors. I wish to express thanks to all the conference sponsors. The more we help each other the stronger we get. I'm looking forward to seeing you in Regina. 💧

Call for Papers

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For further information on submissions of Technical Papers, please check our Website link at:





Industrial water and wastewater – a new horizon for WCW

Bill Brant, Editor, Western Canada Water Magazine

Our Past President Darrell Stang has never been one to pass up a good opportunity. During his years in business, he's always had an eye for new ventures. And while heading up WCW, he saw in the industrial sector a large number of businesses that operated water and wastewater facilities. He became aware that many of those industries did not seem to have anywhere to turn for their water and wastewater operating staff to get continuing education and networking opportunities with their peers. This culminated in Darrell recruiting a representative of the oilsands industry to be the keynote speaker at our 2013 Conference banquet. Darrell was also instrumental in promoting the idea that industrial water and wastewater should be one of the themes for our 2014 WCW magazines. When

prospective themes came up for a vote, the Editorial Committee agreed with him. The result is this issue, which features a number of articles focused on industrial water and wastewater issues.

The industrial sector is a good opportunity for us, on many fronts. Our engineering consultants, suppliers and contractors are already engaged with the industrial sector. But our Constituent Organizations will find in that sector many new potential members hungry for knowledge, training courses, seminars, workshops and conferences. This brings benefits for all of us: remember the theme of our upcoming WCW Conference is "Stronger together." And you remember the old adage, "strength in numbers." We can only become stronger by bringing our western Canada industrial sector colleagues into the fold.

Recently, my employer WSP acquired Focus Corporation, an 1800-person geomatics and engineering consulting firm in western Canada. Focus derives about three-quarters of its business from the oil and gas industry. WSP's corporate leadership obviously agrees that the industrial sector is one in which we ought to be involved. So, thank you Darrell, for your role in leading WCW in this direction.

I will close with an invitation for all of you to join your fellow members at the annual WCW Conference in Regina on September 23-26. On April 1, I booked five rooms for members of my Manitoba WSP team at the Regina Delta Hotel, the Conference venue. We and our colleagues from the west are looking forward to a spectacular event, featuring informative technical papers, interesting presentations from Constituent Organization leadership, excellent networking opportunities and lots of fun. Don't miss out, book now and get registered for the premier water and wastewater event in western Canada. 💧



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2014

May

- 30** SWWA Annual Golf Tournament
 Nipawin, Saskatchewan
<http://www.swwa.ca/ckfinder/userfiles/files/Golf%20Registration%202014.pdf>

- 31 – June 3** WEF - Odors and Air Pollutants 2014
 Miami, Florida
<http://www.wef.org/OdorsAir/>

June

- 5-6** 7th Canadian Biosolids and Residuals Conference
 Vancouver, British Columbia
<http://wcwwa.ca/events/event/7th-canadian-biosolids-and-residuals-conference/>

- 6** 2014 MWWA Golf Tournament
 Winkler, Manitoba
<http://www.mwwa.net/events.php>

- 8-12** AWWA – Annual Conference and Exposition 2014
 Boston, Massachusetts
<http://www.awwa.org/conferences-education/conferences/annual-conference.aspx>

September

- 23-26 WCW 2014 Annual Conference and Exhibition**
 Regina, Saskatchewan
<http://wcwwa.ca/events/wcw-annual-conference-exhibition/wcw14-stronger-together/>

- 27 - Oct. 1** WEFTEC 2014
 New Orleans, Louisiana
<http://www.weftec.org/>

October

- 23-24** 60th Annual Northwestern Ontario Water and Wastewater Association Conference
 Thunder Bay, Ontario
<http://nwowwc.com/main/>

- 26-29** AWWA Water Infrastructure Conference
 Atlanta, Georgia
<http://www.awwa.org/conferences-education/conferences/water-infrastructure-conference.aspx>

- 26-29** CWWA 16th Canadian National Conference on Drinking Water
 Gatineau, Quebec
http://www.cwwa.ca/DrinkingWaterConference_e.asp

November

- 5-7** Annual SWWA Conference and Tradeshow
 Saskatoon, Saskatchewan
<http://www.swwa.ca/events/details/annual-swwa-conference--trade-show.html>

- 16-20** AWWA Water Quality Technology Conference
 New Orleans, Louisiana
<http://www.awwa.org/conferences-education/conferences/water-quality-technology.aspx>

- 21-25** NTWWA 2013 Conference
 Yellowknife, Northwest Territories
<http://www.ntwwa.com/agms.asp>

2015

January

- 11-14** MWWA Annual Conference and Tradeshow
 Brandon, Manitoba
<http://www.mwwa.net/events.php>

February

- 17-20** AWWA/WEF – The Utility Management Conference
 Austin, Texas
<http://www.awwa.org/conferences-education/conferences/utility-management.aspx>

March

- 2-6** AWWA Membrane Technology Conference & Exposition
 Orlando, Florida
<http://www.awwa.org/conferences-education/conferences/membrane-technology-awwa-amta.aspx>

April

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Ottawa, ON

The Council of the Federation – comprised of Canada’s premiers – announced the winners of the Excellence in Water Stewardship Award on March 18. The awards, which recognize outstanding achievement, innovative practice, and leadership in the area of water stewardships, were presented to community groups, businesses, partnerships, and institutions in each province and territory.

The winners from the WCW region were:

- Southern Rockies Watershed Project – Alberta
- Ducks Unlimited Canada – Manitoba
- Wek’èezhii Land and Water Board – Northwest Territories
- Community of Pond Inlet – Nunavut
- Assiniboine Watershed Stewardship Association – Saskatchewan

The Council of the Federation Water Stewardship Council also announced upgrades to its online water information sharing tool on March 18. Canada’s Water InfoStream provides public access to water information from all provinces and territories, while facilitating cooperation and information sharing at a Canada-wide level. Upgrades are aimed at making the website a valuable source for researchers and public policy makers.

York Factory, MB

Federal officials say they are in close contact with York Factory First Nation, the remote Manitoba Cree community that lost its water supply in late February.

The minister’s office in Ottawa said Aboriginal and Northern Affairs officials are focused on repairing the water treatment plant, which federal health officials closed down after diesel fuel odours were detected in the tap water.

The community of nearly 500 has been using bottled water for everything since the “Do not use the water” order was imposed Feb. 27.

Ottawa passed a *Safe Drinking Water For First Nations Act* to set standards for drinking water, and the funding this year is intended to finance the required upgrades.

The issue for remote regions like York Factory is that once equipment breaks down, it’s difficult to get the parts or the expertise to fix it.

Chief Louisa Constant said in a statement about the water crisis that she believed the source of the problem is with the water treatment plant itself. For over 20 years, water treatment in York Landing has run into repeated problems over a malfunction in the automated control panel at the plant. Band officials indicated the plant was never properly repaired after a power surge at the treatment plant from a lightning strike in 1990. Constant said she’s called on both levels of government and Manitoba Hydro to collaborate with the First Nation on repairs to get the treatment plant operating properly. (Source: *Winnipeg Free Press – Online Edition, March 4, 2014*)

Regina, SK

SaskWater tabled its 2013 Annual Report, Supporting Our Growing Economy, in the Saskatchewan Legislature on April 9. The commercial crown corporation reported a net income of \$3.5 million for 2013, and for the first time, appeared on Saskatchewan Business Magazine’s Top 100 Companies list. The annual report illustrates how the corporation’s commitment to growth and financial sustainability are helping the province prosper.

Highlights of SaskWater’s activities in 2013 included:

- Investing in infrastructure to support industrial needs such as building the water supply system for the BHP Billiton Jansen Mine project and upgrades to the Saskatoon Southeast Water Supply system (SSEWS) canal;
- Investing in infrastructure for municipalities such as improvements to the water supply systems that serve White City, Warman and Martensville;
- Focusing on customers with a new Water Quality Index and a new System Reliability Index that help ensure continued safe, reliable water services; and,
- Investing in people and technology to be a more efficient and productive commercial crown corporation.

“Saskwater’s long record of providing safe and reliable water services to its customers continued in 2013. Our Crown water utility works to help our communities and industries reach their potential, supporting goals that are in line with our Saskatchewan Plan for Growth. Building on what they have accomplished, their plans for 2014 are an exciting indication of this province’s progress,” said Minister responsible for Saskatchewan Water Corporation Ken Cheveldayoff.

SaskWater provides professional water and wastewater services to industries, municipalities, rural pipeline groups and First Nations in 63 communities in Saskatchewan serving more than 66,000 people.

SaskWater details its high quality water services in its annual Water Quality Report. The 2013 Water Quality Report is distributed with the Annual Report and will be available online at www.saskwater.com.

Edmonton, AB

The Province of Alberta has earmarked \$1.5 billion for flood mitigation and recovery programs over the next three years, garnering approval from the Insurance Bureau of Canada (IBC). Grants for erosion control, flood hazard mapping, mitigation related to water and wastewater infrastructure, and protecting areas susceptible to future flood damage will collectively cost \$700 million, while a further \$859 million will go toward flood recovery measures.

Western Canada

After a successful pilot project in British Columbia, the Sustainable Infrastructure Society is pleased to launch the website subscription service CanadianWaterWebsites™ in other parts of Western Canada.

The service is designed specifically for community water suppliers. It gives water supply systems a customizable website that is completely editable by staff; no knowledge of html is required. The website contains rich water-related content and features. It's easy to manage and use so the website can be easily updated by staff – whether in the field or in the office. The service increases efficiency and provides a powerful communication tool for the community. The website service comes with unlimited customer support and an affordable price tag.

Several water suppliers in BC now use the service. The administrator at Cowichan Bay Waterworks on Vancouver Island says, "Our new website was launched quickly, and it's easy to make updates ourselves through the secure Client Dashboard. We love the built-in Conservation Tips and other information that's relevant no matter where you live. The Alerts feature is our absolute favourite – with many customers already subscribed to receive news and notices as they occur."

CanadianWaterWebsites™ currently comes with a limited-time introductory offer for water suppliers in Western Canada. Quarterly subscriptions receive 3 months of service for free; and annual subscriptions receive four months of service for free. The offer expires July 1, 2014. A 14-day free trial comes with every new website subscription, and no contracts or cancellation fees are charged. For more information go to www.AboutWaterSystems.org and click on Website Service.

Dauphin, MB

On March 14, Manitoba Premier Greg Selinger announced that the province will help cover the costs of a new water metering system in the City of Dauphin. Manitoba will contribute \$750,000 to the \$1.5-million system and an additional \$750,000 to future water supply infrastructure upgrades. The province is also contributing \$750,000 to upgrade pumping capacity, and electrical and mechanical systems at Dauphin's Brown Avenue pumping station. The project includes work on the main water supply aquaduct that connects the city's distribution system to the water plant located south of the city, replacing a portion of the treated water supply pipeline. The cost of the project will be split evenly between the province and the city.

Winnipeg, MB

AWWA Life member Tom Person has written a book on his experience in caring for his wife after she was diagnosed with early on-set Alzheimer's disease. The book is available on Kindle (Amazon) and Tom hopes to donate proceeds to the fight against this dreaded illness. Here is a note from Tom:

Before retiring a couple of years ago, I was an executive in the water industry. I had a rewarding career providing safe drinking water to the citizens of Winnipeg, as well as serving on the boards of the AWWA and the Water Research Foundation. I am proud to have been one of the founding directors of Water for People Canada. Before this book, my writing projects were limited to articles in trade journals, conference publications, lectures and reports.

But these things in no way define me. They are ancillary to the most important undertaking in my life thus far – my role as caregiver to my late wife Lynne. Lynne was diagnosed with early on-set Alzheimer's disease and it was my privilege to care for her from the time that she became ill at age 50 until her passing at age 63 in 2011. This perspective has allowed me to chronicle our lives until Lynne's passing and beyond.

I hope that Lynne's story will inspire you and that in sharing our journey, you find a bit of hope. I can be reached at topleasedontforgetme@gmail.com and would love to hear your commentary on the book.



**Please forward
"News from the Field"
items to**



Managing Editor Terry Ross
terry@kelman.ca

Edmonton, AB

The Alberta Water Council released a report on March 17 that makes 13 recommendations to more effectively conserve and manage riparian lands in the province. A release connected to the report describes these riparian lands as being threatened by intensifying development and land use changes.

"All levels of government as well as those who use riparian areas on Alberta's public and private land have a role in managing and influencing outcomes," said Gord Edwards, Executive Director of the Alberta Water Council. "Alberta has many successful riparian initiatives, but what's missing is a broad provincial vision and strategy that sets measurable goals and monitors progress toward achieving them."

Some of the moves recommended in the report include:

- Develop a provincial vision and outcomes for riparian land conservation and management that will allow policies, strategies, and initiatives to work toward a common goal.
- Adopt accepted methodologies and use them to map riparian lands throughout the province on an ongoing basis.
- Coordinate and collaborate with municipalities to ensure consistent decision-making with respect to riparian land conservation and management.
- Share knowledge and information to increase understanding of riparian lands.
- Develop integrated management solutions at all scales.



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2014 WATER WEEK NORTH

CONFERENCE SUMMARY

Aquatera Utilities Inc. is hosting a 2014 Water Week North Conference in Grande Prairie, AB.

The conference will provide Northern Alberta communities in the water treatment, wastewater treatment, water distribution, and wastewater collection industry an opportunity for education and networking.

Alberta Environment Approved CEU's for the conference TBA

Rooms available at host hotel:

Holiday Inn & Suites Conference Centre

\$159.99 + taxes and fees
Confirmation #218045
780.402.6886 / 1.888.307.3529
9816 107 Street, Grande Prairie

Other nearby hotel:

Podollan Inn & Spa
\$159.00 + taxes and fees
Group Code #2014WWN
780.830.2000 / 1.866.440.2080
10612 99 Avenue, Grande Prairie



Location: Holiday Inn & Suites

CONFERENCE SCHEDULE

Day 1: Tuesday, October 7

7:30 am - 8:30 am	Breakfast/registration
8:30 pm - 12:00 pm	Workshop 1
12:00 - 1:00 pm	Lunch (provided)
12:45 - 1:00 pm	Welcome/introductions
1:00 pm - 4:30 pm	Workshop 2 for all
4:30 pm - 9:00 pm	Trade Show/Networking

Day 2: Wednesday, October 8

7:30 am - 8:30 am	Breakfast/registration
Technical Sessions (Dual Track Sessions)	
8:30 am - 9:15 am	Session 1 (Room 1 or 2)
9:20 am - 10:05 am	Session 2 (Room 1 or 2)
10:05 am - 10:25 am	Networking Break/ Trade Show
10:25 am - 11:10 am	Session 3 (Room 1 or 2)
11:15 am - 12:00 pm	Session 4 (Room 1 or 2)
12:00 pm - 1:00 pm	Lunch (provided)
	Trade Show (ends at 1)

Technical Sessions (Dual Track Sessions)

1:00 pm - 1:45 pm	Session 5 (Room 1 or 2)
1:50 pm - 2:35 pm	Session 6 (Room 1 or 2)
2:35 pm - 2:55 pm	Networking Break
2:55 pm - 3:40 pm	Session 7 (Room 1 or 2)
3:45 pm - 4:30 pm	Session 8 (Room 1 or 2)
5:00 pm - 9:00 pm	Dinner and Entertainment

Day 3: Thursday, October 9

7:30 am - 8:30 am	Breakfast and registration
8:30 am - 12:00 pm	Workshop 3 - Room 1
8:30 am - 4:30 pm	Workshop 4 - Room 2 (FULL DAY WORKSHOP .6 CEU's)
12:00 pm - 1:00 pm	Lunch
1:00 pm - 4:30 pm	Tour 1 Water/Wastewater Facility (Pre-registration required)
	Tour 2 Landfill Gas-to-Energy Project and Eco Centre (Pre-registration required)
	Lunch provided for Tour

Mail, email, or fax completed registration to:

Aquatera Utilities Inc.

11101 - 104 Avenue
Grande Prairie, AB T8V 8H6
Ph: 780.538.0348
Fax: 780.830.7430
Email: www@aquatera.ca

Register online at
www.waterweeknorth.ca

2014 Water Week North - October 7 - 9, 2014

REGISTRATION FORM

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Company _____

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Would you be interested in sponsorship? ☐

Early Bird Rates: (Before Sept. 4)

Members - \$225.00 + g.s.t.
Non-Members - \$285.00 + g.s.t.

Regular Rates: (After Sept. 4)

Members - \$275.00 + g.s.t.
Non-member - \$335.00 + g.s.t.

1/2 day Workshops/Site Tours:

Member - \$75.00 + g.s.t.
Non-member - \$100.00 + g.s.t.

Full Day Workshop

Member - \$150.00 + g.s.t.
Non-members - \$200.00 + g.s.t.

Conference	\$	_____
Workshop 1	\$	_____
Workshop 2	\$	_____
Workshop 3	\$	_____
Workshop 4	\$	_____
Site Tour 1	\$	_____
Site Tour 2	\$	_____
g.s.t.	\$	_____
Total	\$	_____



Going with the flow

EPCOR brings flexibility, expertise to Kananaskis water and wastewater project

Jordi Hemsing and Jillian Baird, EPCOR

Locals and city dwellers escaping to the mountains don't expect to wake up to the sounds of construction. So when EPCOR was chosen as a partner to expand and upgrade Kananaskis' water and wastewater facilities, the company prepared to accommodate situations like these and other challenges that came with a project of this nature.

New ground for Alberta

In October 2012, the Government of Alberta named EPCOR as the successful partner for a public private partnership (P3) for expansion and upgrades to Kananaskis' Evan-Thomas Water and Wastewater Treatment Facilities.

This project will ensure the environmentally sustainable and safe delivery of water and wastewater services. Safeguards outlined in the contract ensure the facilities are delivered on time and on budget, as well as their continued operation at a high standard.

In partnership with Lockerbie Stanley and Stantec, EPCOR is managing the project through the design and construction phases and will then operate the facilities for 10 years.

"Delivering this kind of project using the public-private partnership model is a first for Alberta and relatively new in Canada," explained Government of Alberta Project Director Param Sekhon. "We're excited to team up with EPCOR to lead the way in providing this much-needed, quality infrastructure."

Of the nearly \$60 million cost, the Government of Canada is contributing up to \$9.95 million through the P3 Canada Fund. A funding partner and project stakeholder, P3 Canada is participating to learn for similar projects in the future.

Once complete, these facilities, which date back to the 1980s, will benefit from technological advancements and upgrades that include new water mains, new water and

wastewater treatment buildings, a new clear well and potable water reservoirs.

Building to be better

The ecologically-sensitive Evan-Thomas project required some creative thinking.

The need to design a project that would integrate into the landscape and not substantially exceed the current site footprint



was a top priority. For EPCOR, this means maintaining existing infrastructure at the Kananaskis and Nakiska Reservoirs, as well as re-purposing existing process units at the existing wastewater treatment plant – a cost-effective and sustainable approach.

Delivering water

As the Evan-Thomas project progresses, EPCOR's commitment to delivering safe water is clear. Water in the Kananaskis area will benefit from online monitoring and the addition of UltraViolet (UV) disinfection to the treatment process, technology that acts as a barrier.

While the water plant's overall treatment capacity remains at 3,000 m³ per day, the project is increasing storage capacity and improving the distribution system. This will ensure more water is available during high-demand periods or when the treatment process is interrupted.

The replacement of aging infrastructure like valves, valve chambers and piping also serves to ensure the efficient delivery of water.

Another win

This project will improve fire protection services for Kananaskis too. A relatively remote area, Kananaskis is unlike other communities that can call on their neighbours for support in the event of fire.

"Part of the project was meeting the Province's requirement of ensuring the sufficient supply of water for fire protection," said EPCOR Project Manager Jordi Hemsing. "What we're putting in place will have a positive impact on Kananaskis' ability to respond to a fire."

While the Kananaskis Reservoir's existing capacity is 1,100 m³, this project will increase it by 2,770 m³ capacity for emergency and fire flow storage purposes.

For the Nakiska Reservoir, the existing capacity of only 450 m³ will remain as the potable water supply. The construction of an additional reservoir with a capacity of 2,925 m³ will serve as a fire storage reservoir. The unique design ensures water quality is maintained at all times.

Treating wastewater

The wastewater treatment plant will benefit from a new membrane building featuring new filters, chemical storage and UV disinfection

technology, while the aerobic digesters are being repurposed and modified to biological reactors. The secondary clarifiers are being converted into Screened Raw Sewage (SRS) tanks.

The new wastewater treatment system will fulfill the most stringent approval requirements, as set out by Alberta Environment and Sustainable Resource Development. The treatment solutions being put in place will also reduce the amount of nutrients like phosphorus and nitrogen going into the river. Aquatic life in the Bow and Kananaskis Rivers will benefit from these higher effluent standards.





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"EPCOR has a vested interest in watershed protection," explained Hemsing. "We take pride in our ability to meet improved stringent effluent standards, as the results will have long-term impacts on some of Kananaskis' greatest natural assets."

The stakes are high

Stakeholder consultation is a key part of any construction project, but it's often residentially focused. The makeup of stakeholders differs in Kananaskis – EPCOR is liaising with these groups, which are varied and each with its own set of challenges. Examples include hotels, mobile home parks, golf courses, campgrounds and commercial ranches.

"From the outset, we aimed to keep everyone well informed and were mindful of the potential impacts of construction on businesses," said Jordi Hemsing. "Wherever possible, we have tried to schedule our work in a way that limits disruption for seasonal activities."

Adjustments are made, where possible, such as scheduling work during low seasons and outside of peak times for the nearby Nakiska ski area, Kananaskis Country Golf Course and hotel, or moving equipment to free up space for a sleigh ride staging area.

A dedicated call centre has also been established, as well as a Community Advisory Panel made up of people who represent a variety of viewpoints in the community. The latter provides a valuable opportunity to share information and gather feedback on the project.

"Stakeholder engagement has been a critical piece of this project," Hemsing continued. "Our stakeholders understand the need for this project and continue to work with us to make it a success."

Moving forward

Construction will wrap up in summer of 2014, when the primary focus will shift to operations. The new facilities will have more operator coverage during work hours, providing added care and attention to the water and wastewater systems.

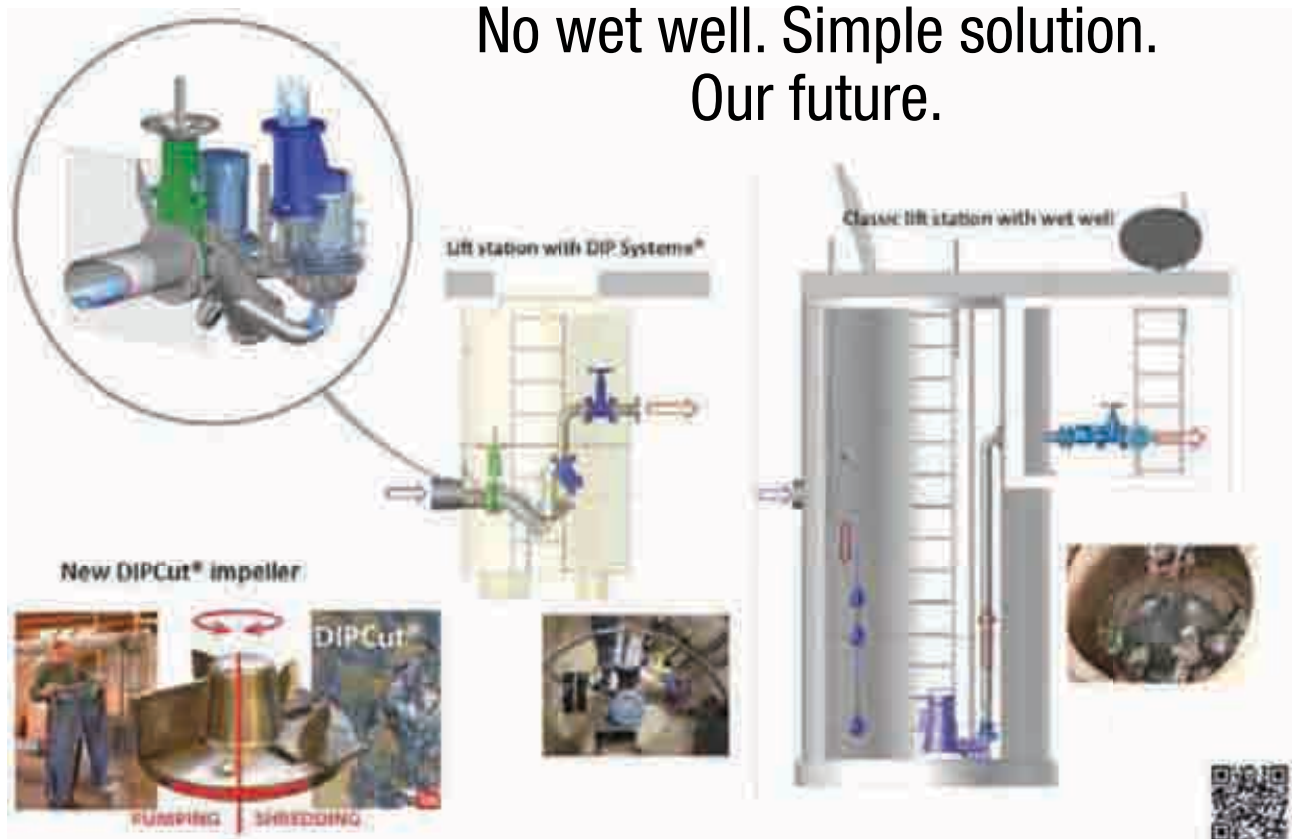
"The Evan-Thomas project is one in which all of our partners can take pride," said Hemsing. "Looking ahead, we know the communities downstream will benefit from this environmentally-sustainable and safe approach to water and wastewater management." 💧

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S.I.D.E. Industrie is a French family company specialized for over 25 years in solutions for the pumping of “difficult fluids.” Based on practical expertise in the field, the development of its product range (56 models with flow rate: from 20 to 10.000 gpm/unit and head from 3 to 300 ft.) is the result of 30 years of research, and from listening to the daily concerns of its 1200 users worldwide, enabling them today to offer a modern alternative to wastewater lift stations that saves time and money by logically solving issues such as : dangerous gases (H₂S), odors, sand and grease accumulation, hazardous access, variable flow, clogging, and dirty jobs...

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Knowing that cleaning out a classical pumping system costs on average \$350 that is equivalent to an electric consumption of 3.500kW/h, DIPCut® allows the savings of those clogs and uses less power. Contrary to others as Grinder or shear and cut and pump, the DIPCut® impeller keeps its high hydraulic pumping efficiency. Moreover, while shredding, all the power of the motor is used only by the 4 “knives” that are very efficient and consume less energy.

Result: an efficiency doubled in comparison to other pump systems, so no motor oversize.



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MPE Engineering - Proud of our past... building the future

For over 30 years, MPE Engineering Ltd. has provided multi-discipline consulting engineering services to a broad client base throughout Alberta, and more recently British Columbia and Saskatchewan. MPE started out in Lethbridge servicing the water resource and irrigation sector, but now, with over 200 personnel working in seven offices, MPE is established as a solid leader in the Municipal, Water Resources and Building Services sectors.

MPE provides a wide range of services that allow us to follow a project through from inception to completion, including project management, planning, preliminary and design engineering, tendering, construction administration, and commissioning. Our discipline areas include civil, electrical & controls, process, structural, mechanical & HVAC, programming, drafting and surveying.



“MPE provides a wide range of services that allow us to follow a project through from inception to completion, including project management, planning, preliminary and design engineering, tendering, construction administration, and commissioning.”

Municipal

MPE's services in municipal engineering cover a diverse range of projects for many sizes and types of clients. This diversity and broad range of experience has come from a commitment to understand and service the needs of each client, regardless of project size. Our areas of practice include:

- Wastewater Collection and Treatment
- Infrastructure Assessments
- Storm Water Management
- Solid Waste Management
- Land Development
- Policy, Guidelines and Standards
- Roads and Transportation

Water Resources

The development and management of water resources requires a wide range of specialized skills to construct effective and sustainable projects. MPE's expertise, practical approach and hands-on experience make us a leader in various facets of the water resources sector, including:

- Irrigation and Drainage
- Water Control Structures
- Water Management
- Dam Safety
- River Engineering
- SCADA, Instrumentation and Controls

Building Services

MPE has proven capabilities in the development and management of numerous Building Services projects. Areas of practice for Building Services include: Structural, Mechanical, Electrical, Civil and Facility Audits and Assessments. Extensive design expertise in a broad spectrum of building types include:

- Supportive Living
- Assisted Living
- Post-Secondary Schools
- Health Care
- Residential





- Commercial
- Government
- Industrial
- Public Assembly
- K-12 Schools
- Transportation
- Office Buildings
- Correctional
- Recreational
- Gallery/Museum

MPE has achieved its success through hard work, seizing important opportunities as they arise and hiring skilled, effective and dedicated staff. We believe that client service is KEY and ingrain this into our staff. On this basis, we focus on building long-term relationships versus a short-sighted 'project-by-project' approach. We enjoy working with our clients in a team environment to develop innovative solutions that are not only of high engineering quality, but also economical, practical, and sustainable. We have found that this is best accomplished through effective communication, including key client personnel such as superintendents and operators, in order to create solutions based on a thorough understanding of the issues, needs and overall operation of the system.

By means of our 'client focused' approach, we have steadily increased in size and built a solid reputation through repeat clients and word of mouth. 💧



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Mini single parameter analyzers

Onset, a world leader in data loggers, has released the HOBO U20L Series, the industry's lowest-cost, research-grade data loggers for continuous water level and temperature measurements in streams, lakes, saltwater estuaries, and other underwater environments.

HOBO U20L Series Water Level Loggers set a new standard for price/performance in the water monitoring industry. Priced at just \$299, the loggers combine 0.1% measurement accuracy, a polypropylene housing for use in both fresh and saltwater, and a non-vented design for convenient and hassle-free deployment. Available in 4-, 9-, and 30-metre depth models, the loggers will be used in a range of environmental monitoring applications, from ecology studies to hurricane storm surge monitoring.

"We are all having to do more with less these days, so the HOBO U20L logger's \$299 price point will enable users to get more measurements throughout the spatial area they are evaluating," said Paul Gannett, product marketing manager for Onset. "And, they will be able to maximize their project dollars without compromising on performance."



Deployment-friendly design

Unlike traditional water level loggers, which rely on cumbersome vent tubes and desiccant packs for operation, HOBO U20L Water Level Loggers operate as stand-alone units. This simplifies deployment and eliminates many of the maintenance issues associated with vent tube-based loggers.

The HOBO U20 logger also features Onset's Optical Interface, eliminating issues associated with failure-prone mechanical connectors, and it's compatible with Onset's HOBO Waterproof Shuttle for safe, convenient data offload in the field.

Powerful software

To analyze and plot water level data, Onset offers HOBOWare®, a highly intuitive graphing and analysis software package. HOBOWare provides a user-friendly graphical user interface, and offers a number of convenient features such as a Barometric Compensation Assistant, which enables easy pressure-to-level conversion. The software also features a Bulk Export tool that allows users to export data files to text format for use in spreadsheets.

Pricing and availability

HOBO U20L Series Water Level Loggers are available immediately from Onset and are priced at \$299. Complete pricing details and technical specifications can be found at <http://www.onsetcomp.com/products/data-loggers/U20L-data-loggers>.

For more information, visit Onset on the web at <http://www.onsetcomp.com>. 💧



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Water boils down to talk and actions

By the Honourable Robin Campbell, Minister of Environment & Sustainable Resource Development, Province of Alberta

When you talk to people about Alberta and resources, the conversation often goes in predictable directions.

You hear about oil, gas, oil sands, timber, and sometimes even our land base. Somehow, water seldom enters the conversation; yet water is the most important of all our natural resources. Water is needed to develop these other resources, grow and raise the food we eat, and is the essence of life itself.

With that in mind, it becomes obvious why our precious water resources need to be used and managed carefully. Albertans have successfully managed our water for over a century and the Alberta government is taking many steps to continue this tradition to ensure we are prepared for a future that includes a growing population, an expanding economy and higher expectations for environmental performance.

The need to address our changing circumstances prompted our government to hold public and stakeholder conversations in 2013.

The conversations were attended by 1,300 Albertans and additional input was received through 760 surveys and 350 written submissions.

It's more than just talk. Our government is taking action and will release an action plan that will work to protect, conserve, or enhance Alberta's water resources and address priorities related to healthy lakes, hydraulic fracturing, drinking water and wastewater, and overall water management.

While water is essential for life, too much water can greatly disrupt lives. Albertans experienced this first-hand in June 2013 when unprecedented flooding swept across southern Alberta in what has been called the greatest natural disaster in Canadian history.

To help municipalities recover, the Alberta government has approved \$600 million for mitigation over the next three years. Of the \$600 million, \$325 million will be allocated to community mitigation through the new *Resilience and Mitigation*

Program, or "RAMP." Mitigation efforts will focus on erosion control work, community-level mitigation such as berm and dikes, as well as large, regional infrastructure projects.

Other work being done by the Government of Alberta to ensure the wise management of our province's water resources now and in the future are the *Water for Life* strategy and *Surface Water Quantity Management Framework*.

Alberta's *Water for Life* strategy is a 10-year plan has three main goals: safe, secure drinking water, healthy aquatic ecosystems and reliable, quality water supplies for a sustainable economy. These goals will be met through knowledge and research, partnerships, and water conservation and reflects the population increase and economic growth Alberta has seen over the past years, and Albertans' changing water needs.



Part of the *Water for Life* strategy is promoting the development and expansion of regional water and wastewater systems because they often make environmental and economic sense. It is a challenge for smaller communities with limited tax bases to build and operate expensive individual treatment and distribution facilities. Regional systems allow these communities to pool their resources for the infrastructure and operating expertise needed to provide safe, reliable water supplies and wastewater treatment for their residents.

The *Surface Water Quantity Management Framework* looks at increasing the level of protection for the Athabasca River. It sets the cumulative water management expectations for industry, both in terms of current use and expectations for future use by existing and new development and will help guide decisions for new projects, ensure reduced overall future water use, where possible, and increased water storage, where necessary.

Having reliable water sources and supplies is critical for Albertans and this is assisted by water management infrastructure. The Alberta government has invested \$8 billion in water management infrastructure which includes the ownership and operation of more than 200 major water management systems including dams, diversion works, weirs and control structures as well as 535 kilometres of canals that serve 554,000 hectares of irrigated land in more than 50 municipalities and countless other industrial and agricultural users. These facilities provide water sources for municipalities and irrigators while supporting economic, agricultural and recreational opportunities in many parts of the province.

When it comes to water in Alberta, we're not just talking about it; we're taking concrete actions to ensure healthy, sustainable supplies for today and future generations. After all, water is indeed our life source. 💧

"When it comes to water in Alberta, we're not just talking about it; we're taking concrete actions to ensure healthy, sustainable supplies for today and future generations."

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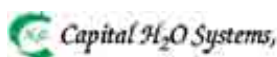
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Stronger Together



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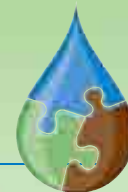
Western Canada Water welcomes you to Regina for our 66th Annual Conference and Exhibition. The theme for this year's conference is ***Stronger Together***. This theme was chosen to reinforce how water, wastewater and stormwater are all linked through the hydrologic cycle and to encourage the collaboration between numerous water and wastewater associations by uniting within Western Canada Water. This unity allows the Association to speak as one voice to compete for ever-shrinking budgets.



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Stronger Together



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Stronger Together



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The Conference provides you with an ideal opportunity to showcase your products and services to an expected 500 delegates from the Western Canada Water marketplace, including utility managers, operators, and government representatives and consulting engineers.

You can select and pay for your booth online (<https://members.wcwwa.ca/exhibitor/Login.aspx>).

If you have any questions or issues with this new system, please call Carole at 1-877-283-2003 during regular office hours.

Keynote Speaker



Jill Heinerth

Jill Heinerth, winner of the Sir Christopher Ondaatje Medal for Exploration from the Royal Canadian Geographic Society, will present the keynote address at the opening of the Western Canada Water Conference. A noted cave diver and filmmaker, Jill's award winning documentary *We Are Water*, is helping to disseminate crucial information about water literacy.

She notes, "Everyone needs to understand where their water comes from, how they might be unintentionally polluting it and how we can protect it for future generations."

Tours & Workshops

Information on tours and workshops is available on the WCW website. Program details will be available in June.

Social Media



#workingforwater14

For more information regarding registration, speakers, workshops, tours, and general information please visit www.wcwwa.ca. Please join in the conversation in our LinkedIn group - 'WCW Annual Conference'.

Online Registration Instructions

You can register for the upcoming WCW14 in Regina online. Go to the Registration page in the Confederation website.

Event Registration Instructions

1. Click on the "Register Now" button
2. Select the event on the drop down list.
3. Select registration type.
4. Members will require login (see below for user ID & Password information) – all other registration types will require information input.
5. Select registration and event details.
6. Confirm registration details and approve cancellation policy.
7. Enter Payment information - transaction will be processed directly by Moneris on a secure page. WCW will not receive any card information.
8. System will send a confirmation email
9. Your Contact ID is a unique number in our database for your personal data. It appears in some of the emails we send out to members, your AWWOA or MWWA membership card, or on your mailing label.
10. Default Password: first initial+last name. (eg: wsmith)

If you have not received your online access information or for assistance, contact the office (1-877-283-2003) during working hours or email member@wcwwa.ca.

There is a separate section for purchasing a booth for the WCW Annual Exhibition, including booth selection – go to 'Exhibitor Information' on the WCW14 website to access the show floor plan, make booth selections and update attendee information. You will have to create a separate company account for this area of the website – your individual member logon information does not work here. 💧



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Registration Form

WCW'14 Annual Conference & Exhibition

September 23-26 2014 Regina Saskatchewan



Name _____
 Company _____
 Mailing Address _____
 City _____ Province _____ Postal Code _____
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Part A: Conference Registration

Includes Exhibition, Opening Breakfast, Meals and Evening Programs. Gala & WFP Breakfast extra.

Registration Type

Check one	Prior to Aug 31	Sept 1-Sept 19*	Total
<input type="radio"/> 3 Day Member	\$ 520	\$ 620	_____
<input type="radio"/> 3 Day Non-Member	\$ 620	\$ 720	_____
<input type="radio"/> 3 Day Life/Student	\$ 120	\$ 150	_____
<input type="radio"/> 1 Day†	\$ 300	\$ 350	_____

† Indicate day of attendance for 1 Day Registration ☐ Wednesday ☐ Thursday ☐ Friday

* Registration Fees will be \$50 higher Onsite - Preregister and Save

Membership Number(s)

AWWA _____ SWWA _____
 WCWEA _____ MWWEA _____
 WEF _____ AWWOA _____
 MSSA _____ NTWWA _____

☐ Check here if vegetarian meal is required
☐ or if there are any food allergy issues, please indicate:

Part B: Workshops

Workshops Tuesday September 23

Half Day Sessions \$ 150 (0.3 CEUs)

- ☐ W1 - Building a Robust Capital Investment Plan
 8:30 am to 12:00 noon
☐ W2 - Project Risk Management (sponsored by
 Young Professionals) 8:30 am to 12:00 noon
☐ W3 - Biological Nutrient Removal Processes
 1:00 pm to 4:30 pm

lunch is not provided for any workshops

Full Day Sessions \$ 250 (0.6 CEUs)

- ☐ W4 - Municipal Wastewater- Federal
 Regulations and Toxicity Testing
 Requirements 1:00 pm to 4:30 pm
☐ W5 - Disinfection of Drinking Water 8:30
 am to 5:00 pm (Full Day Session)

Half Day Sessions - Qty _____ x \$ 150 = _____ Total

OR Full Day Session - Qty 1 x \$ 250 = _____ Total

Part C: Tours

Tours Tuesday September 23 AM

Cost per Tour \$ 40

Registrations limited to 40 people per tour

- ☐ T1 - City of Moose Jaw Wastewater Treatment Plant 8:30 am to 12:30 pm
☐ T2 - Mosaic Pump Station 8:30 am to 12:30 pm
☐ T3 - Last Mountain Distillery 9:00 am to 11:30 am

Qty _____ x \$ 40 = _____ Total

Part D: Special Events

- ☐ **WFP Breakfast Thursday September 25** Qty _____ x \$ 20 = _____
☐ **GALA Dinner Thursday September 25** Qty _____ x \$ 75 = _____

Part E: Total

A. Conference _____

B. Workshops _____

C. Tours _____

D. Special Events _____

Subtotal _____

5% GST _____

Voluntary Water for People Donation _____

GRAND TOTAL _____

☐ I do not wish to be included in the list of attendees
 NOTE: If you select this option, you may not receive
 any correspondence from any supplier or invitations
 to member hosted special events.

GST No R108199589

GST exemption #: _____

Payment Method

☐ Cheque (Payable to Western Canada Water) ☐ Visa ☐ MasterCard

Cardholder Name _____

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Cancellation Policy

- Cancellation received before **September 1**: 100% refund less \$50 service charge.
- Cancellation received **September 1 to 15**: 50% refund less \$50 service charge.
- Cancellation received after **September 15**: NO REFUND
- Substitutions welcome

Online Registration is also now available. Please contact the office if you require information to access your membership profile.

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Guess WHAT?



Can you guess what these photos are?

Frost Flowers

Frost flowers are produced when air temperature is below 0°C but the soil isn't. With frost the plant sap expands, causing cracks on the stem. As more sap is drawn up by capillarity, the thin ice layers are pushed further through the cracks.

Watershedplus.tumblr.com presents daily pictures of water related subjects. WATERSHED+ is an innovative and unique public art program hosted by The City of Calgary, aimed at building an emotional connection between citizens and their watershed. watershedplus.ca.

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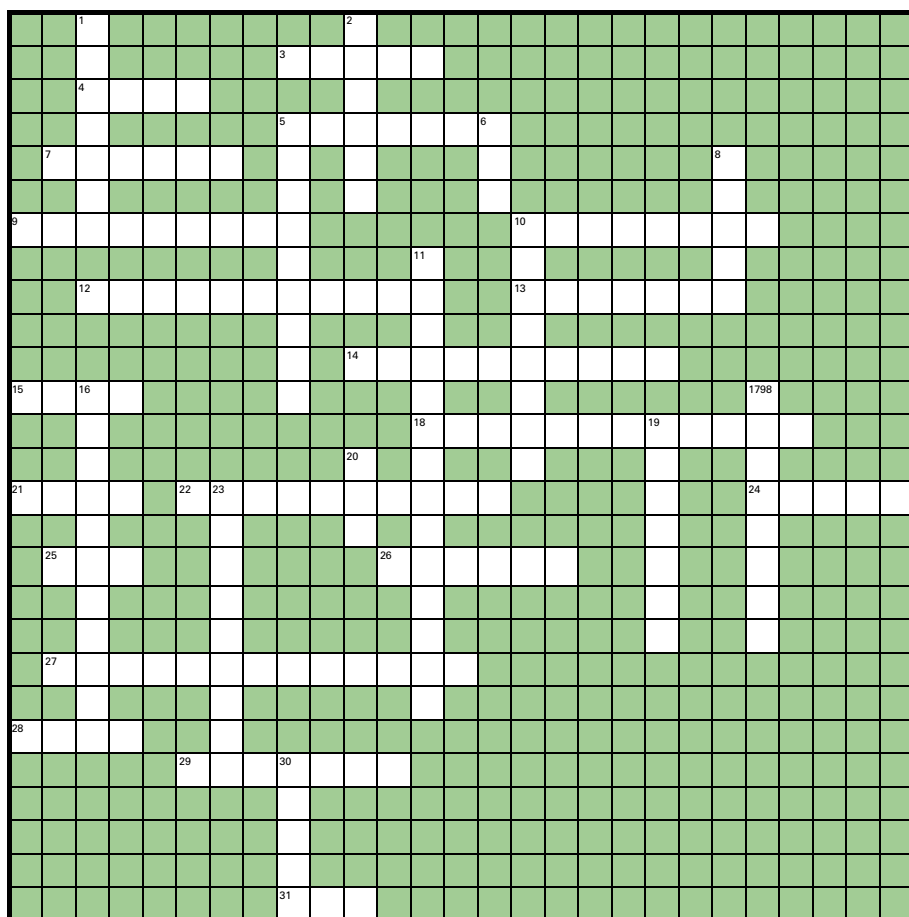
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15. _____ Litre: one million litres of water
18. The movement of water into and through a soil which can affect sewage collection systems.
21. The rate of water flow across the membrane surface area
22. A measure of the ability of a water to neutralize acids
24. The reference name of an arrangement of process treatment equipment & pumps in parallel to another identical set of the same equipment
25. Silt density index
26. A holding and/or treatment pond to promote the biological treatment of wastewaters
27. Destruction or removal of all viable organisms
28. An opening in a membrane or filter matrix
29. The step in the treatment process that removes grit and other solids through a screening process followed by a period of settlement
31. Dissolved organic carbon

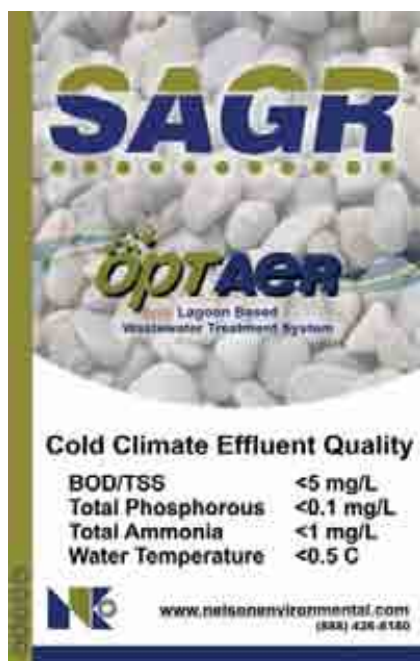
DOWN

1. The temperature of the surroundings
2. A membrane element combined with the membrane element housing
5. Influent or source water into a water treatment process
6. Granular activated carbon
8. _____ Activated Sludge: Excess sludge removed from the treatment process to keep the ratio of biomass to food supplied in the wastewater in balance, and is further treated by digestion prior to disposal.
10. Any class of microscopic single celled organisms that reproduce by fission or by spores. Often characterized by round, rod-like, spiral or filamentous bodies.
11. The process of removing dissolved gases from water
16. Water confined in permeable sand layers between rock or clay
17. Water treatment equipment that uses sodium based ion exchange resin principally to remove calcium and magnesium cations.
19. The dissection of a membrane element to investigate the causes for unsatisfactory performance.
20. Clean in place
23. Name of the index that is used to determine whether water is acidic or scale forming
30. _____ Liquor: The combination of wastewater and biological mass.

Across

3. The positive electrode of an electrodialysis cell
4. A grouping of membrane modules and a high pressure pump

5. A reduction in water mass transfer caused by materials in the water, often caused by silts or colloids
7. _____ Activated Sludge: the return of settled material, the sludge, to the head of the aeration system to re-seed the new wastewater entering the tank sludge (R.A.S.).
9. _____ Sludge: The process involves air or oxygen being introduced into a mixture of screened, and primary treated sewage or industrial wastewater (wastewater) combined with organisms to develop a biological floc which reduces the organic content of the sewage
10. The process of reversing the flow of water either across or through a medium or a membrane
12. Type of lagoon used where there is insufficient energy provided by the aeration equipment to keep the sludge in suspension and solids settle to the lagoon floor.
13. The negative electrode of an electrodialysis cell
14. A condition of unequal flow distribution in a filter bed



Find the answers on page 44

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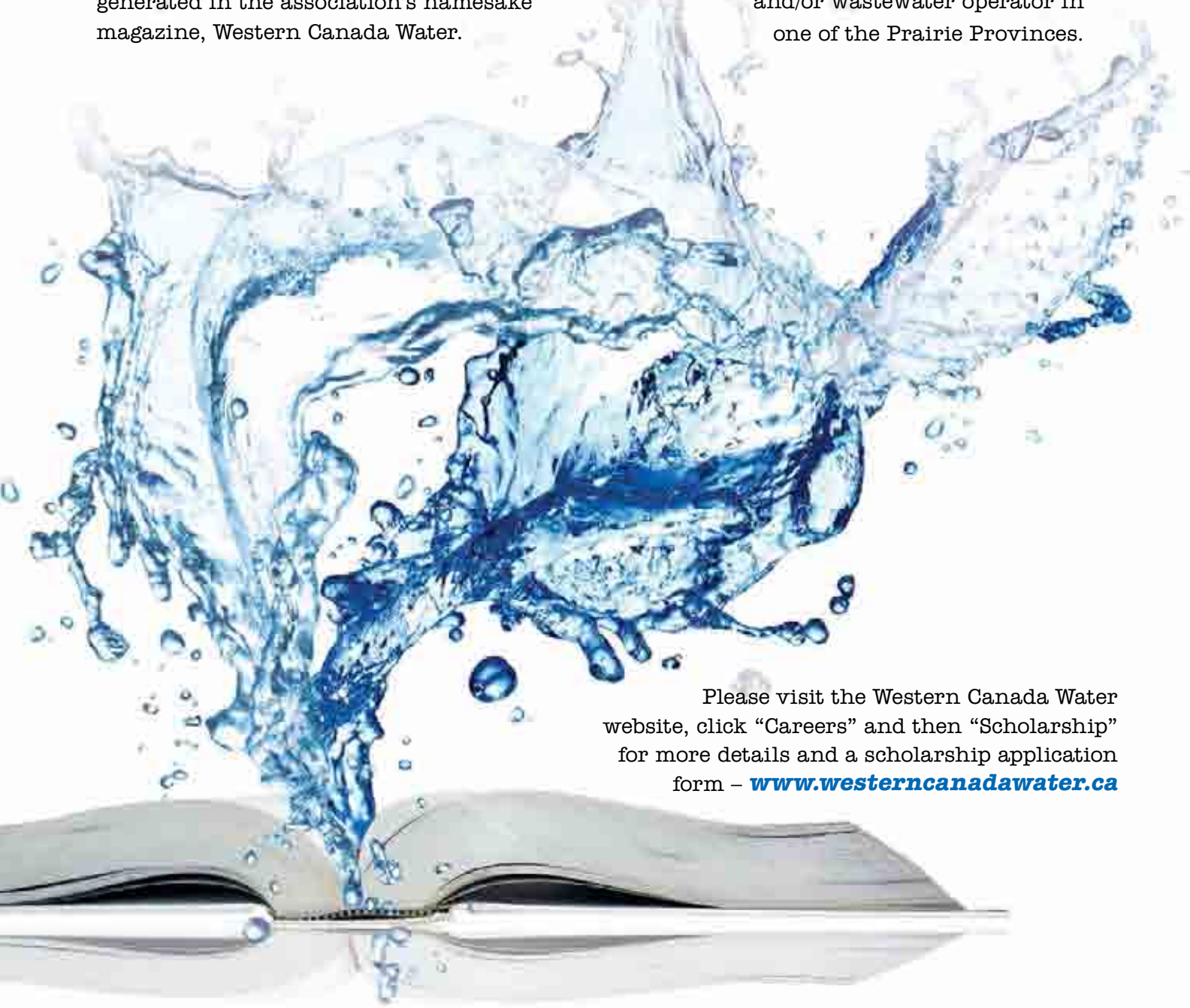
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**A Message from Craig Kelman & Associates,
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To demonstrate our admiration and respect for the industry association, Western Canada Water, its members and the water industry as a whole, we have established a yearly educational scholarship of \$500 to be funded through a percentage of advertising sales generated in the association's namesake magazine, *Western Canada Water*.

On behalf of our professional publishing team and our advertisers who use the pages of *Western Canada Water* to convey their important messages, we offer this scholarship to a deserving individual who is or will be studying to become a water and/or wastewater operator in one of the Prairie Provinces.

Please visit the Western Canada Water website, click "Careers" and then "Scholarship" for more details and a scholarship application form – www.westerncanadawater.ca

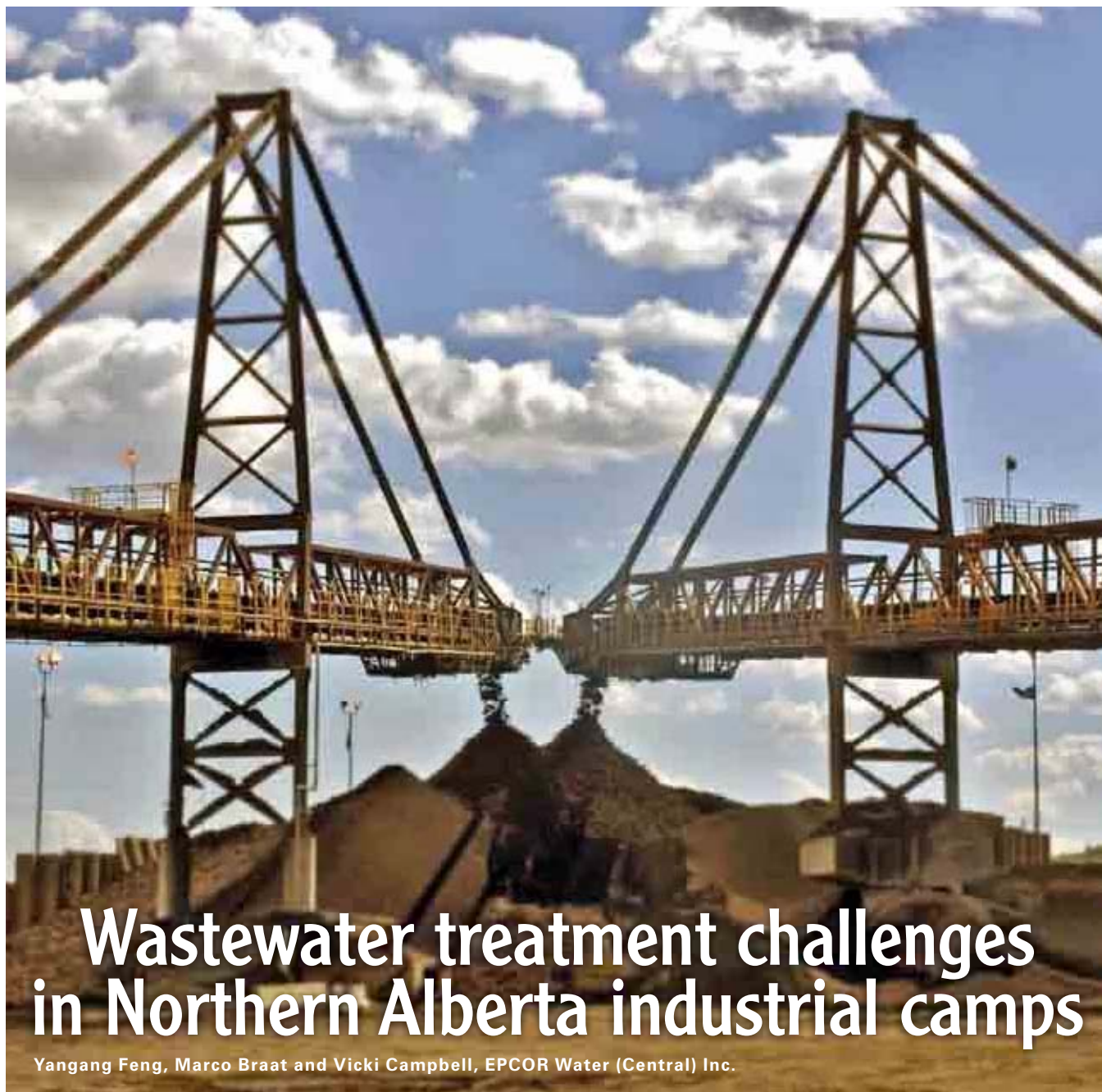




Industrial Water & Wastewater

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- 40** Cryofront: Managing a 'Giant' toxic legacy in the North
- 42** Diavik Diamond Mine Water Management Plan



Wastewater treatment challenges in Northern Alberta industrial camps

Yangang Feng, Marco Braat and Vicki Campbell, EPCOR Water (Central) Inc.

Situation

EPCOR operates many wastewater treatment plants (WWTP) on industrial campsites in Northern Alberta. These plants are primarily used to treat domestic wastewater generated from Oilsands workers staying in the camps, along with that generated from other sources such as camp kitchens and other services. The raw wastewater flow and quality fluctuate significantly with the camp population.

Some camp populations can be as high as 5,000 people at peak times and drop to less than 100 during certain times of the year.

Treatment of wastewater in these locations is challenging throughout the year, as the lack of infiltration and other dilution sources makes the quality of the raw wastewater different from that of municipal systems. Parameters such as BOD₅ and TSS can be extremely high in the influent, each often higher than 500

mg/L and during certain situations up to 1000 mg/L. Septic trucks hauling to the plant further complicate the situation and it is observed that the BOD₅ loading usually has significant sudden surges due to shift worker schedules. For example, during the Christmas break the BOD loading can drop to 20% of the normal operational value in two or three days and after the holiday, the BOD loading will quickly come back to normal.



The wide variations of influent quality and quantity results in many challenges in keeping the WWTPs performing consistently and ensuring effluent quality meets Regulatory Approvals. In order to achieve this with a biological system, the plants have to be kept running with their full capacities during the low BOD loading period so that the wastewater can be properly treated when the situation suddenly comes back to normal. This treatment requires an external carbon source to provide enough food to microorganisms when the BOD loading is low.

Chemicals at low dosage levels used for this purpose can, in larger quantities, be difficult to ship or store safely (particularly on remote Oilsands sites). As a result, EPCOR explored easier ways to manage this issue and also sought more cost-effective alternatives.

Solution

To minimize the potential risks, research was performed and a number of everyday products were trialed. The testing and analysis brought forward the conclusion to add sugar as an alternative carbon source to the bioreactors during the low BOD loading periods. The sugar can be easily obtained

from any local grocery store, and it does not have any hazardous characteristics that the other chemical alternatives have. It is also safe to store and handle. When required, sugar can be manually added to the treatment process, several times a day based on the influent flow to maintain the BOD loading at a proper level.

To estimate the amount of sugar to be added into the treatment process, testing was performed to determine the COD and BOD₅ constituents in sugar. The laboratory results indicate that 1 kg of sugar can provide approximately 1.05 kg of COD or 0.75 kg of BOD₅ (Figure 1). If the BOD₅ concentration in raw wastewater is approximately 250 mg/L, one bag of sugar (10 kg) will be equivalent to approximately 30 m³ of raw wastewater in terms of the amount of BOD₅ available for microorganisms.

This practice has been successful. Over the past several years, EPCOR continued to use sugar as a temporary external carbon source in the WWTPs during the low BOD loading periods. In comparison to other methods such as trucking raw wastewater from other places to augment the BOD loading, dosing chemicals to the treatment process, etc., we found that adding sugar is a more cost-effective, more flexible, easier to use and a much safer approach.

Benefit

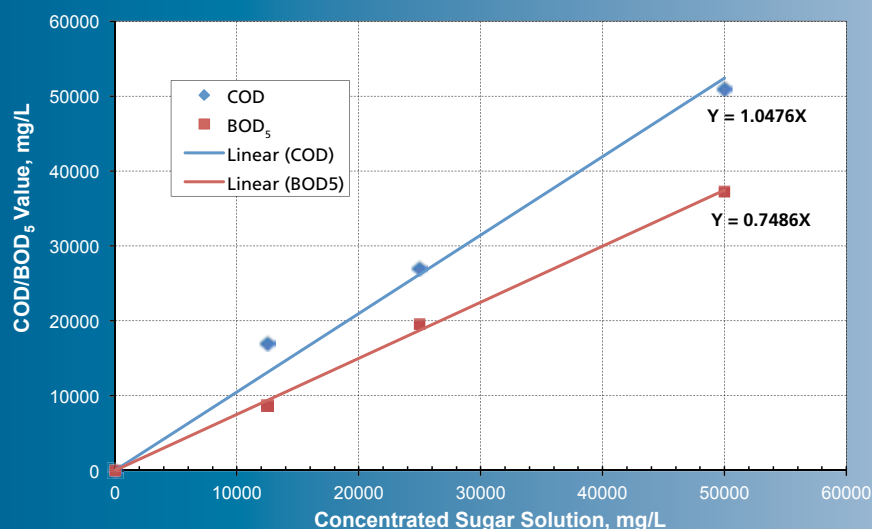
EPCOR has experienced the following benefits by using sugar as a temporary external carbon source during low BOD loading periods:

- Minimized the potential risks to operators and the environment over using chemicals;
- Compared to the chemical alternatives, sugar is less risky to transport and store;
- Sugar is easy to handle, especially for locations with limited chemical dosing systems for external carbon sources;
- Sugar is easily obtained from the local grocery stores, which reduces the concern for chemical delivery availability, cost and risk;
- It has been proven that sugar works well to provide a food source to the microorganisms during low BOD loading period; and
- For our small remote WWTPs, adding sugar is more cost-effective than the chemicals that are typically used for this purpose in the WWTPs.

Other considerations

There have been concerns expressed in the industry that adding sugar might affect the biology in the treatment process and have negative impacts on the plant performance, such as sludge bulking. There have been many studies and applications that have shown that carbohydrates are safe and effective to be used as external carbon sources for microorganisms in WWTPs. The USEPA also recognizes carbohydrates (such as corn syrup, molasses, etc.) as alternative carbon sources for wastewater treatment. It has been EPCOR's experience in the WWTPs that we operate in Northern Alberta, that even when sugar was added to the treatment process continuously for several weeks, it worked well. The plants continued to meet all regulatory approvals and effluent quality was not compromised. Also, the plants were able to re-establish full capacity performance quickly when the worker population returned to site. 💧

Figure 1 – COD and BOD₅ constituents in sugar





Slurry pumping challenges and solutions for industrial wastewater

Jason Nelson, North America Construction and Mining - Marketing and Business Development Manager, Xylem Water Solutions

Many industries in Canada face the problematic issue of transporting and disposing of industrial slurry wastewater. Whether removing drilling residue from construction sites, transporting slurry tailings from mines and quarries, draining industrial overflow sumps or pulp and paper tanks, each application poses its own unique challenges. Whichever the industry, a solution to these demanding applications is the slurry pump. Slurry pumps are heavy and robust centrifugal pumps, capable of handling tough and abrasive duties. Once it is determined that a slurry pump is required, there are a number of factors to consider in order to choose the right pumping solution for the project.

Submersible or dry installed?

Both submersible pumps and dry installed (wet prime) pumps can be used to transport slurry. Submersible pumps offer some benefits for slurry pumping. As they operate directly in the slurry the submersible pump does not require a support structure such as dam, boat or skid and therefore requires lower construction costs and has a smaller footprint. In addition, the motor and volute are one integrated unit which makes the pump compact, easy to install and move around as necessary. This leads to greater flexibility as the slurry pump can be used in multiple locations. An advantage of submersible pumping is the significantly lower noise levels and often silent pumping. Submersible

pumps also offer very reliable operation – since there are no long or exposed mechanical links between the motor and the volute, less maintenance is required, and operating costs are significantly lower. Thanks to an effective internal and external cooling system, submersible slurry pumps can continue pumping down to a very low level, meaning that more solids are pumped out during each operating cycle.

Xylem's Flygt slurry pumps consist of a very effective motor design which incorporates up to 30 starts per hour in order to keep solids in suspension and prevent settling – the reason being that the more often a pump starts, the less time sediment has to settle. Many competing pumps on the market only start around 15 times an hour.

In comparison, dry mounted slurry pumps can have the hydraulic end and drive unit located outside the sump. This group of slurry pumps are available for a wide range of head and flow conditions and have various material options. One feature of dry mounted slurry pumps is easy accessibility of the motor for service repairs, however they can require motor alignment and are less compact.

With regard to costs, the choice of submersible slurry versus dry installed options often comes down to comparing the initial capital costs versus the lifecycle cost of the product, including parts, repairs and service. While dry installed pumps for slurry transport involve a smaller initial capital outlay, submersible slurry

pumps are often more cost-efficient to run and operate over the long term.

Considerations for pump selection

Pumping slurry makes different demands on a pump than simply pumping water. In addition, each pumping application is different and requires its own unique slurry pumping solution that considers the 'specific gravity' or density of the liquid, the size and shape of the solids in the liquid, as well as the type of industrial wastewater application, to name just a few considerations.

Choosing the correct slurry pump for a particular application is a complex process where all factors need to be studied. It is important that an expert or a professional slurry pump system designer is brought on board to help select the most appropriate pumping solution. For example, if a pump that is too small or too large is used pump parts will wear at a much faster rate than if the correct size pump is selected.

At Xylem we can match any motor size with any size impeller and volute, meaning that our slurry pump solutions can be customised to specifically suit individual applications. For example, in some situations you may need a large impeller but not necessarily a large motor. There is no point in incurring the expense of a large motor if it is not necessary. A slurry pump expert will recommend the ideal impeller, volute and motor to deliver optimum pumping performance.



Industrial Water & Wastewater

Slurry pumps are more expensive than conventional dewatering pumps so when installing a slurry pump it is important to ensure that the slurry solids are getting into the pump and it is running as efficiently as possible.

Piping

It is crucial that the pipe system matches the pump. When selecting a pump we recommend that a specialist be involved in the system's pipe design to ensure the most efficient and effective solution possible is put in place. Generally it is prudent to install as large a pipe as possible to avoid the higher friction losses that can occur with smaller pipes. On the other hand too large a pipe can result in low velocity where solids can settle within the pipe and not reach the pump. To ensure an effective slurry pumping system, the pipe should correctly match the pump and flow of the slurry.

Budget considerations

Renting slurry pumps is another important consideration. If the slurry pump is not required for continuous use, then it can be more economical and efficient to rent a pump. In some situations a dewatering pump may be in use to remove unwanted water and a slurry pump used occasionally to extract any solid particles that have settled there.

The importance of research

One of the most common errors is not doing enough research into the most appropriate pump required for the application. It is important to 'do your homework' and consider pipe velocity, the size of the motor, the size of the impeller and the characteristics of the slurry to be removed. It is often worth investing in expert advice at the outset to eliminate expensive mistakes in the long run.

If there are doubts as to the type of slurry transport system needed, it is recommended to contact a professional to get assistance in choosing the right pump, calculating friction losses, liquid velocity and designing the pipe system. This will ensure that the most appropriate and therefore the most cost-effective solution is employed.

In abrasive environments the correct impeller and volute design and the ideal pump all combine to ensure efficient performance. Pumping slurry can cause a severe reduction in the hydraulic efficiency of a pump. Therefore it is crucial that the impeller design minimizes any drop in efficiency. Higher pumping efficiencies also correlate to lower wear rates. Experience shows that the design of the impeller and volute is as important as the choice of material, in minimizing the wear rate.

Xylem's Flygt slurry pumps feature long, swept back impeller vanes which ensure a homogeneous flow to keep solids and water together so that the solids don't separate from the water. Keeping the liquid and solids together results in a more efficient system and reduces wear and tear on the pump. Generally speaking, although each situation is unique, a stainless steel pump is the best option for a corrosive environment where the liquid is of low pH.

Slurry pumping is one of the most demanding applications for any pump. Xylem's Flygt 5000 series is specifically designed for slurry removal. These pumps offer efficient solutions to lower operating costs for slurry handling. Flygt 5000 pumps handle large flows up to 400 L/s (6000 GPM), heads to 100 m (325 ft.) and solids up to 36 mm (1.4 in.) in

diameter. Available with power ratings from 7.5 to 215 kW, 50 hz (12 to 335 hp, 60 hz), these abrasive-resistant pumps are ideally suited to tough industrial wastewater applications.

Xylem is continuously listening to our customers, investing in R&D and working to develop the most energy and cost-efficient solutions for our customers. Xylem has 12 sales and service locations across Canada and a nationwide rental fleet to fulfill your pumping requirements. For more information, please contact xylemwatersolutions.com/ca. 💧

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Cryofront: News, Views and Muse from the Far North Managing a 'Giant' toxic legacy in the North



Ken Johnson, Stantec

History of Yellowknife gold mining

The history of Yellowknife is intrinsically linked to its start as a mining town. When gold was discovered on the shores of Great Slave Lake and the claims were staked, Yellowknife was born as a gold mining boomtown. The two most longstanding and productive mines, the Con and Giant Mines, were a result of the original exploration. Con closed underground operations in 2003 after 65 years of production and Giant closed underground operations in 2005 after 60 plus years of production. Both mines have left significant legacies on the shores of Great Slave Lake.

The rock mined at Giant is rich in gold and arsenopyrite, a mineral that has a high arsenic content. The gold extraction process used at Giant required a 'roasting' process to extract the gold from arsenopyrite rock. Arsenic trioxide dust was created during the production of more than seven million ounces of gold between 1948 and 1999. When the ore was roasted to release the gold, arsenic was also released as a gas. As the gas cooled, it became arsenic trioxide dust.

In the early days, much of the arsenic trioxide was released into the air. Pollution-control hardware installed in the late 1950s prevented most of it from going up the stack, but that created a new problem of managing the solid arsenic trioxide, for which the solution was to store it in mined-out chambers underground. This was thought to be a stable, long-term method of storage for the simple reason that the area was surrounded by permafrost, and had been drained for mining.

Over a 50-year period 237,000 tonnes of toxic arsenic trioxide was produced, which is still being stored to depths of nearly 250 metres (800 feet) below ground in various shafts and chambers.

Arsenic trioxide is water-soluble containing approximately 60% arsenic, therefore it is critical to maintain the stored material 'high and dry' to ensure that arsenic is not released into the environment. This effort requires that the groundwater be maintained below the 250-metre level through an automated dewatering pumping system.

Managing the Giant Mine arsenic trioxide

Almost all of the arsenic trioxide at Giant Mine is stored in 15 underground chambers and stopes (irregular, mined-out cavities) cut into solid rock. Concrete bulkheads, which act as plugs, seal the openings to these chambers and stopes. The arsenic trioxide dust is totally surrounded by solid rock.

The 'doorways' to the chambers were sealed with 1.2-metre-thick concrete bulkheads anchored into the rock. However, due to the extensive mining, the permafrost around Giant thawed, and water began seeping into the storage chambers, becoming contaminated, with the potential of entering the groundwater systems. In response to this new issue, the water is pumped from the mine to a treatment facility on the surface. The contaminants in the water are

removed through a treatment process before the water is released into the environment.

When this underground storage method was originally designed, it relied on the area's natural permafrost, which worked as a frozen barrier. It was believed that when the time came to close Giant Mine, permafrost would reform around the storage chambers and stopes, and seal in the arsenic trioxide. A 1977 report by the Canadian Public Health Association concluded that the underground storage of arsenic trioxide dust at Giant Mine was acceptable.

When the mine permanently closed, some stakeholders wanted the arsenic trioxide removed from the mine and shipped elsewhere, away from Yellowknife's 18,000 residents. Citing risks to workers and the environment, Aboriginal Affairs and Northern Development Canada selected a solution of reestablishing the permafrost around the underground chambers and into a big deep-freeze, locking the dust into an eternal deep-freeze.

The Remediation Plan calls for the arsenic trioxide dust and the rock around each chamber and stope to be completely frozen using the "Frozen Block Method." A main aspect of the proposed solution, known as the "Frozen Block Alternative," is to permanently freeze the arsenic trioxide storage chambers to keep groundwater seepage out. Integral to the Frozen Block Alternative is the automated dewatering pumping system to maintain the groundwater below the underground chambers. Planning



Industrial Water & Wastewater

and engineering for a new mine de-watering pumping system was initiated in 2005 by Public Works and Government Services Canada.

With the mine closure, cleanup and remediation efforts have been completed in the lower portions of the underground works and it is no longer necessary to keep the mine de-watered below the 260 m. level. Water enters the mine as groundwater seepage and surface run off. The mine water level is held at the 260 m. level by the automated mine de-watering pumping system.

De-watering system hydraulics and pumping

Mine de-watering is maintained by pumping the mine water from the 260 m. level to surface at the historic Akaitcho headframe, in two separate pumping lifts. The lower lift portion of the pumping system uses a duty standby set of parallel submersible pumps installed within HDPE carrier pipes in an inclined mine shaft. These pumps lift water approximately 30 metres to a sump located on the 230 m. level of the mine. The sump is configured to provide 'dirty' and 'clean' cells by using a series of concrete weirs placed across an abandoned mine drift. This sump provides a suction volume to the high lift pumping system that moves water from the 230 m. level to the surface in a single lift. Once at the surface the water flows to a retaining pond for subsequent treatment. The high lift pumping system uses a duty standby set of parallel 250 hp. multi-stage centrifugal pumps. Both the low lift system and the high lift systems are matched in pump capacity in order to provide a total de-watering flow rate of 275 cubic metres /hr.

Construction of de-watering system

The mobilization of materials to the project site up to 260 m below the ground surface was a major challenge, particularly since the mine is no longer in full operation. Construction of the sloped sections of the water line from 260 m to 130 m would have been a routine exercise for pipe fitting contractors, however, the contracting resources available for the work were ex miners, therefore the work proceeded slowly in the initial part of the project. As the work advanced, the contractor utilized pipefitting expertise and the work progressed much faster.

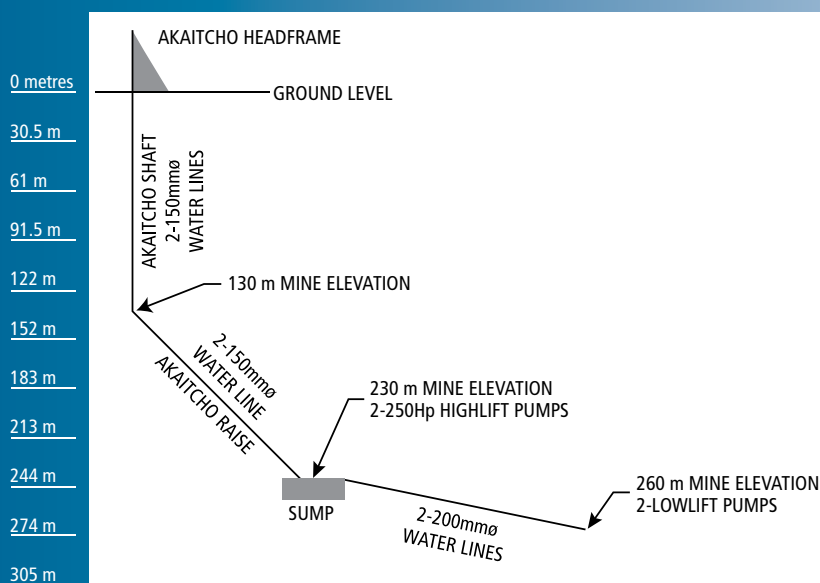
Construction of the vertical section from 130 m to the ground level was difficult because it required construction from the bottom up, which meant that 6-metre pipe sections were lowered down the Akaitcho Shaft and sequentially added to the lower section and supported to the shaft wall. Access for this section of the work was challenging for the contractor

because all of the steps and landing down to 130 m were wooden construction dating back to the 1950s in some cases.

Commissioning the dewatering system was held to a critical milestone of catching the spring runoff inflow. The work was ultimately completed in November 2008 for a total cost of \$3,000,000.00 (CDN). 💧

Profile of Giant Mine Water Management System

not to scale



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Diavik Diamond Mine Water Management Plan

Ken Johnson, Stantec

Introduction

The Lac de Gras watershed is a pristine region of the Northwest Territories feeding into the Coppermine River, which travels 850 km north through Nunavut to the Arctic Ocean. Lac de Gras is 60 km long, with an average width of 16 km, and an average depth of 12 metres, with a maximum depth of 56 metres. As an arctic lake it is cold year-round, with temperatures ranging from 0 to 4 C in the winter and 4 to 21 C in the summer. The lake freezes in October and spring breakup is in July and the average ice thickness is 1.5 metres. Typical of arctic lakes, aquatic productivity in the lake is low because of the relatively low concentrations of nutrients, low light level during winter months with the ice cover, and low water temperatures.

The Diavik diamond mine is built on a large island in Lac de Gras, 300 km northeast of Yellowknife, and has been operating since 2003. To prevent runoff from the site from entering the lake, the mine was constructed with a comprehensive water management system for collection and treatment. Through a system of sumps, piping, storage ponds and reservoirs, the mine collects run-off water, which can be reused in processing or treated before being released back into Lac de Gras.

Plant and surface operations water management requirements include:

- North Inlet Water Treatment Plant and North Inlet Pond and outfall
- Surface runoff and seepage pond system;
- Potable water, sewage treatment, raw water and fire water;

- Recycling and raw water use associated with the Process plant and the Processed Kimberlite Containment facility.

North Inlet Pond and Water Treatment Plant

The North Inlet Water Treatment Plant (NIWTP), North Inlet Pond, and the North Inlet outfall have the fundamental objective of treating water to meet compliance requirements prior to discharge to the environment.

Waters directed to the North Inlet originate from:

- Pit and underground inflows;
- Surface runoff from North Inlet drainage basin;
- Surface runoff from disturbed areas; and
- Water transfers from the Clarification Pond.

Water inflows are received at the North Inlet and then pumped to the NIWTP for treatment. The North Inlet Pond has an estimated 2.5 million cubic metres of storage. The North Inlet Pond provides surge storage capacity and allows some solids to settle before water is treated at the NIWTP. The NIWTP was designed to remove fine solids in cold-water conditions. Major system components include coagulant and flocculant preparation equipment, two high capacity clarifiers, and four deep bed sand filters.

The filters and pH-control system have not been required to achieve water licence compliance; thus the NIWTP is operated with the clarifiers on a standalone basis. Bypassing the filters in the treatment circuit permits throughput to be increased from 20,000 m³/day to a maximum of 45,000 m³/day. Treated effluent is discharged into Lac de Gras via two submerged outfall and diffusers located 200 m offshore at a depth of 20 m.



Water management site plan



Industrial Water & Wastewater

Surface runoff management

Surface runoff historically occurs over a five-month period from May to September. Runoff volumes depend on the particular weather conditions, and Diavik selected 1-in-100-year return conditions for sizing surface runoff collection systems.

The surface runoff collection system consists of a network of ponds that collect runoff from the North Country Rock Pile, South Plant Site and the Processed Kimberlite Containment (PKC) Pond perimeter berms. Pipelines are permanently installed to permit transfer of waters from the collection ponds to the PKC facility. Collection ponds are designed to hold, without discharge to the environment, 100% of a 1-in-100-year return period freshet occurring over an 8 day period. As pond watershed surface areas will change over the life of the mine, the maximum watershed area was considered during pond design.

Aircraft fueling and de-icing are performed on the airport apron, which is sloped toward the North Inlet. Fuel or de-icing spills would be directed to the North Inlet.

The North Collection Pond, located west of the North Country Rock Pile, collects seepage from the North Country Rock Pile and can be used as temporary storage for mine water. If water quality meets discharge criteria, it may be discharged to Lac de Gras; otherwise it is transferred to the North Inlet or the PKC facility. The pond water collection system was designed to transfer pond waters to the PKC facility. If collected runoff waters meet the water license quality limits, they may be discharged directly to Lac de Gras.

Potable water supply and wastewater treatment

The potable water system consists of deep bed multi-media filters, polishing filters, and chlorine dosing. The raw water is supplied from the overall raw water supply system. The plant is sized to accommodate 800 persons.

Raw and firewater are pumped from Lac de Gras through distribution systems servicing the south plant site. The raw water system has a design capacity of 250 m³/hour, plus standby capacity. Flow demands include the process and recovery plant; a mobile equipment wash bay; and the potable water. The firewater system has a design capacity of 450 m³/hour plus standby capacity.

The South Sewage Treatment Plant (SSTP) services the south plant site including operating facilities, the construction camp, and permanent accommodations. Wastewater treatment capacity is designed to accommodate 800 persons at a design flow rate of 300 litres/person/day, for a total of 320 m³/day. The SSTP is an activated sludge system with tertiary filtration. Treated effluent is disinfected with chlorine. The WWTP discharges into the PKC system.

Processed Kimberlite Containment (PKC) facility

Key objectives of the PKC facility and Process water management system to provide storage of processed kimberlite (PK); act as an equalization reservoir for

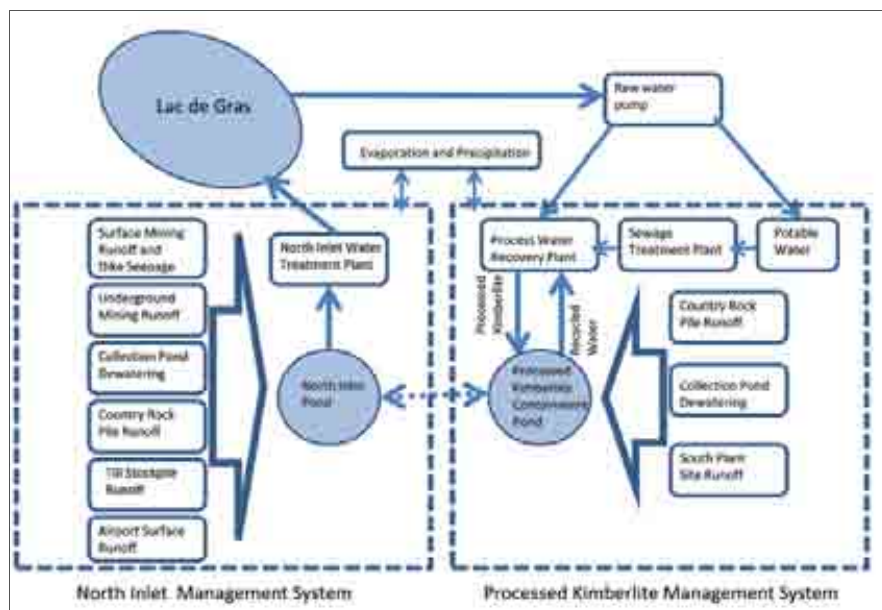
supernatant water and runoff water for process plant re-use; and provide recycled water to the Process Plant.

The Process and Recovery Plants are both the primary consumers and suppliers of water to the PKC facility. The plants consume reclaim water and raw water for ore processing, and generate coarse (1 mm to 6 mm) and fine (less than 1 mm) PK. Coarse PK is transported by truck to the coarse PKC storage area, and fine PK is transported as slurry via an insulated pipeline to the PKC facility.

The Process and Recovery Plants are designed to maximize reclaim water recovered from the PKC pond to minimize raw water use. Reclaim water is used for essentially all process services in the Process Plant.

Conclusions

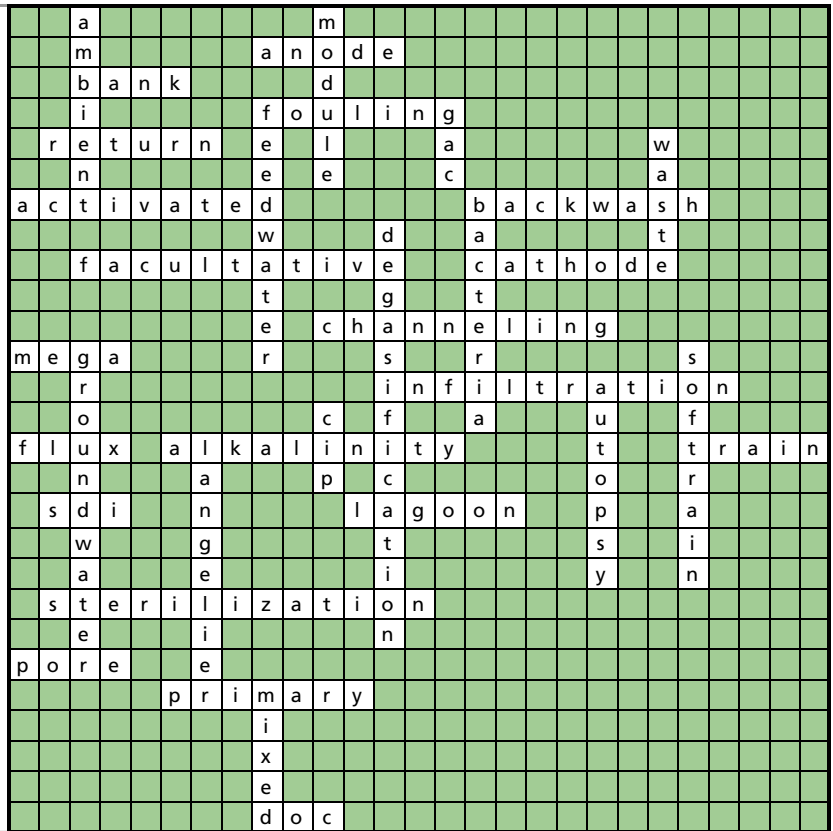
The Diavik diamond mine is a unique world-class operation, with world-class water management systems. The water management demands on Diavik and the other diamond mines in the Canadian north have been high, but given the pristine nature of the environment, these demands were warranted. 💧



Water management schematic

Crossword ANSWERS

(from page 32)




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Name: Terry Melnyk

Position: Account Manager/Outside Sales

Organization: Wolseley Engineered WaterWorks Group (Edmonton)

Core Function

Regional sales

Born and Raised

Edmonton, AB

Education/Training

I have my Grade 12 with university courses pertaining to waterworks. I'm also a certified heavy-equipment operator and trainer.

History in the industry and as a WCW member

I started in 1990 as a water meter installation coordinator, after which I was a hot tapping and HDPE fusion technician, performing all kinds of water and wastewater related services (and becoming specialized in these areas). I've also completed most heavy equipment operator courses and related courses. I've been an active member of the AWWA since the early '90s. In the mid-'90s when I was involved in a subdivision installation turning farmers' fields into a private 36-house adult gated community, well, I was hooked from then on.

Typical day

My role takes me into customer's buildings/offices and jobsites allowing me to get a hands-on approach as to our current and future customers' needs. I then take those needs and source out the best and most efficient materials. This allows me, with my experience, to educate them on any new materials or updates to any existing materials. Not reinventing the wheel, but being able to showcase any industry improvements can occur several times a week, which is a great motivation for coming into work the next day. Watching projects progress from drawings on paper to real life completions is also very satisfying.

Job Satisfaction

I love the ability to educate and show the new technology in our industry and I really love meeting new people every day and developing relationships that can, and will, last a lifetime. Having the knowledge and ability to troubleshoot to assist customers' needs is also very satisfying. Having a past that enabled me to touch, handle and install almost everything we supply is a huge asset when helping customers. I can already see what they're trying to accomplish and that is rewarding in itself. I use the cliché "been there, done that" and show them how I can help.

Main challenges

The main challenge is meeting deadlines for customers' orders and deliveries. It takes a great deal of organization, scheduling and time management. Another challenge is scheduling the busy lives of other people to fit in with my schedule (and vice-versa). Today's world is a busy place and finding the time to meet with other people is a big challenge. You have to be flexible and accommodating for so many others to be successful. Being compassionate for others helps during the process.

Career highlights and mentors

My personal highlights are some of the specific certifications I've received (i.e., Certified in up to 165 mm HDPE fusion in which running that machine alone is satisfying). Other highlights include being one of only three certified to hot tap large diameter hyprescon transmission lines in our region, plus being able to be the 'hero' in saving customers large amounts of money by offering options to complicated repairs. Another highlight is being able to drive around your hometown or even other communities to see the end results of projects in which you were involved.

I've had several mentors and people to look up to. This industry offers very long, satisfying careers and it isn't unusual to talk to people who will have 40+ years of knowledge. These same people have all advanced so far up in their careers, it's not difficult to pick several individuals to look up to.

Advice for a successful career

My best advice is to stay organized and honest. It takes twice as much effort to come back from mistakes rather than doing things properly in the first place. Customer service is all about being there and available. Don't get all caught up in this 'voice mail/leaving messages/getting back to you' game that goes on way too much these days. Answer the phone, step up and deal with what's in front of you. If you allow too much time to go by, frustrated people will always find other ways. In a customer service industry you can never get ahead if you're not available to be that support when called upon. Stay organized – it's simple.

Time away from work

I'm a single father of two terrific boys and so, when I'm not at work, I'm still living like a kid. I still can play in the sandbox with the best of them. From dirt bike riding and BMX racing to snowboarding/skiing and dirt surfing – I'm still a kid at heart and, when I'm away from work, I'm playing. I've also played drums since age 6 and continue to play weekly (though as an adult it's now called "therapy"). 💧

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Name: Michael Buchholzer

Position: Director of Environmental Services

Organization: City of Yorkton

Core Function

I'm responsible for the management of the Wastewater Treatment Plant, Water Treatment Plant, Landfill, Recycling and Project Management for affiliated facilities.

Born and Raised

I was born and raised in Melville, Saskatchewan. I left Melville when I was 18 to complete my education. I then worked in Nipiwini, (SK) as an inspector for SaskPower's hydro dam.

Education/Training Highlights

I have a diploma in Civil Engineering Technology from the SIAST Palliser Campus in 1983. I have a Class 4 Certification in Water Treatment, Wastewater Treatment, Water Distribution and Wastewater Collection.

History in the industry and as a WCW member

I started as an operator at 23. The design, engineering, and processes within mechanical wastewater facilities fascinated me. I progressed to Manager of Water and Wastewater and now Director of Environmental Services. I've managed numerous capital projects such as the installation of water/sewer trunk mains and the largest project in Yorkton's history: the construction and design of the Logan Green Water Management System.

I have been a long-time member of WCS AWWA. The summits, workshops, and conferences are educational training aids.

Typical day

I start my day responding to e-mail inquiries re: residential and commercial development servicing; dealing with consultants and provincial regulators in regards to our landfill expansion and the new wastewater regulations; discussing with the Ministry of Agriculture the operations of our

composting program; and working with business and community groups on new and innovative recycling/composting programs.

I'm part of a team with other city departments, working closely with developers to create a service plan that meets their needs and the future growth of the city.

Job Satisfaction

I like the work diversity and being able to use my imagination on projects. As Yorkton goes through a period of unprecedented growth I'm proud and excited to be part of a team that has planned for our future. We have laid the foundation for great things to come, a 40-year plan for our landfill, a sewer and water distribution master plan, and a water treatment facility that will meet the city's requirements for the next 25 years.

Main challenges

I think our biggest challenge is succession planning. Obtaining educated and experienced staff is difficult. The City operates a Class 3 water treatment facility and Class 4 wastewater facility. We are a small community and require our operators to be certified at both certification levels.

Career highlights

My first would be the Logan Green Water Management System. This project received three national awards and two provincial awards. It involved working with community groups, federal and provincial organizations, watershed groups, wildlife fish and game, and consultants. It was created BY the community, FOR the community. A personal accomplishment was receiving my Class 4 certification in water treatment, wastewater treatment, water distribution and wastewater collection.

Mentors

Some of my past and present supervisors, consultants I worked with, council members, city staff – they've all influenced me

Advice for a successful career

Listen to your clients. We are here to service the community. Another point would be to take criticism positively. Listen to what individuals have to say and see if you can change your methodology.

Time away from work

During the summer, I enjoy time at the lake golfing, fishing and boating. My winter activities consist of travelling to warmer climates, ice fishing and snowmobiling. ❄️

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Name: Kerri McIvor

Position: Wastewater Treatment Operator

Organization: RM of Headingley Wastewater Treatment Facility

Core Function

My position's core function is to provide the highest quality wastewater treatment possible.

Born and Raised

Born in BC, I was raised in Winnipeg, MB and Gimli, MB.

Education/Training

I obtained my CET after completing the Environmental Protection, Civil Engineering Technology program at Red River College. I've also completed the majority of the University of Sacramento Wastewater courses.

History in the industry and as a WCW member

After finishing the C.E.T. program at Red River College I was hired by the Rural Municipality of Gimli as a Water and Wastewater Treatment Operator. The RM of Gimli employed me for seven months before the RM of Headingley asked me to join its team at the newly constructed Wastewater Treatment Facility. I have been here for just under two years now.

I attended last year's Western Canada Water Conference as well as the Manitoba Water & Wastewater Conference where, along with my manager, we created and he presented a paper on the effects of MLSS on Nitrification.

Typical day

Typically the day starts off with a thorough look at the SCADA system and a walk through the plant, composite and grab samples are collected, in house lab analysis is completed and data is inputted into the computer. In the afternoon, routine maintenance is completed.

Job Satisfaction

I enjoy the fact that there is always so much more to learn and I am fortunate enough to work alongside someone who has so much experience and encourages me to further my education and career.

Main challenges

The main challenge is public awareness – or lack of awareness – of how important water and wastewater treatment is. The saying "out of sight, out of mind" is what the general public seems to think, but it's a thought process that needs to change.

Career highlights and mentors

I was the 2013 recipient of the MWWA's 'Rookie of the Year' award and was very excited to receive it. As previously mentioned, obtaining my CET designation this year was also a huge achievement. Something else I'm proud of is being invited to speak with school children on the importance of water/wastewater treatment throughout history and the opportunities in the field of environmental engineering technology and operations.

Advice for a successful career

Ambition is an amazing attribute, so never let someone's 'lack of ambition' stop you from going as far as you can.

Time away from work

I spend a large portion of my free time with my horse preparing for/showing within the province. When I'm not riding I enjoy 'quading' and snowmobiling with my boyfriend and friends. 💧



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A national voice on water issues

Edith Phillips, CWWA Director for WCW

One advantage to being part of Western Canada Water (WCW) is the connection to CWWA. It is our opportunity to be involved nationally with respect to water issues and internationally through their connection with IWA (International Water Association) and the link to a number of ISO standard technical committees. CWWA provides us advocacy, opportunity for national information sharing and additional learning opportunities. It also connects us to other associations in Canada since it is a federation of regional partners and has us working together to create a stronger national voice for the water and wastewater community.

A major focus for CWWA over the last few years has been advocacy for the Water industry in the National Long Term Infrastructure Plan. CWWA has provided input into the roundtables that led to the infrastructure announcements and continues to work hard at the national level to lobby for the need for further investment in the critical public systems of water and wastewater. Following the Federal Budget announcements and 10-year funding plan, the effort now moves to the provincial and municipal level to use those funds for water and wastewater. CWWA, together with the five AWWA sections and five WEF member associations in Canada, has created an infrastructure committee to support our members in promoting infrastructure renewal. The committee, which has five AWWA and five WEF representatives, has developed an initial survey seeking information on barriers to funding infrastructure and will go out to all WCW members. This survey, set to go out in May, will provide vital information to lead the committee in representing our interests and it is your opportunity to bring your concerns to a national level.

CWWA is also working with our partners to promote standards for flushable products. There have been numerous media stories; Edmonton just recently was on CTV, discussing the problem these products pose to the wastewater industry. It is through the International Standards

Organization that Canada has proposed an ISO technical specification. These efforts can make a difference.

There are a number of useful publications on the website for water utilities and some are even free. There is also the free e-Bulletin that one can sign up for that provides the latest Association and industry news.

The Central Canada Symposium on Water Quality and the Canadian Wastewater Management Conference that was held in Niagara Falls was a success. CWWA efforts are now focused on the 16th Canadian National Conference on Drinking Water. This biannual conference is held in conjunction with Health Canada and the Federal-Provincial-Territorial Committee on Drinking Water (CDW). The conference provides insight to utilities as to the direction drinking water guidelines are going and enables utilities to prepare for upcoming changes. But this conference isn't just for academics. This year, a utility stream is being developed that will be relevant to Utility Managers with topics related to rates, efficiencies, etc. It will be held in Gatineau, Quebec (part of the National Capital Region) from October 26-29. The program will be out shortly providing conference details and can be viewed at www.cwwa.ca.

CWWA ends its year with the Window on Ottawa, November 18-21. This annual national event truly is a look into what is going on at the national level. It is worthy of mention now so that you can mark this on your calendar and plan to attend. It is exciting to have these opportunities to become a better water professional and to support changes that will impact our industry.

A reminder that application deadline is June 2, 2014 for CWWA's \$500 Scholarship in recognition of Steven Bonk's guidance and development of the CWWA and his roles as leader and ambassador of the water and wastewater sectors. Details of eligibility and selection are posted on the CWWA website.

I hope that by the time this issue reaches you the weather is warm and you are enjoying the activities that summer holds with family and friends. 💧



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ACE and Beyond

Simon Thomas, Director, Western Canada Section, AWWA

Annual Conference & Exhibition (ACE) – Boston, June 8-12, 2014

The Canadian Affairs Committee (CAC) is once again hosting the Canadian Water Forum in Boston at ACE. The Water Forum will take place on Monday, June 9 from 5:30 p.m. - 7:30 p.m. at Cheers (Faneuil Hall location). Tickets are available on-line from the Western Canada Water office. Tickets are \$45 in advance and \$55 at the door (changed this year to encourage people to buy tickets early so we get a better headcount).

Member Highlights

- Congratulations to Dr. Dan Smith's appointment to the Order of Canada at the end of last year.
- Congratulations to Eliman Camara from Calgary for winning the AWWA 2014 Division Best Paper Award for *Lead Service Line Replacement Program: A Utility Case Study*, published in the August 2013 issue of Journal AWWA.
- Gary Sullivan has been the Section Services contact for our Western

"AWWA is a member of the Value of Water Coalition. I'd encourage people to take a look at the website which has a large variety of water related stories and information."

The technical session hosted by CAC at ACE is moved from the usual Tuesday afternoon time to Wednesday morning (WED14 | 8:15 a.m. - 10:45 a.m. Managing Risk North of 49 - Disinfection Issues, Climate Change, and a Montreal BWA). We will have series of top papers by Canadians followed by an interactive session at the end.

Value of Water (www.thevalueofwater.org)

AWWA is a member of the Value of Water Coalition. I'd encourage people to take a look at the website which has a large variety of water related stories and information. The reason it was developed was: "The Value of Water Coalition is made up of both public and private members of the water industry, who have come together at a time when our water infrastructure is at risk. We aim to educate the public on the importance of clean, safe, and reliable water to and from every home and community, and to help ensure quality water service for future generations"

Canada Section for many years. He is retiring after ACE in Boston to pursue yet another career – a great example of continuing to pursue dreams and interests. The previous Director, Ray, said it well – "I thank Gary Sullivan, our AWWA Section Services contact, who has to be one of the nicest gentlemen I've ever met and certainly the most helpful when it comes to support of 'all things AWWA.'"

Beyond

This is my last article and rather than list the many many people who helped me along the way, I'll keep this short and thank those people in person. For Dan Limacher, your new AWWA Director after ACE in Boston, I feel honoured to have a friend and mentor taking over the duties of representing our Section, knowing the excellent job he will do.

Thanks and see you around,
Water is for Life! 💧



In the
next issue...

WCW 2014
Conference & Exhibition
**Stronger
Together**



Western Canada Section
American Water Works Association

The meaning of 'Stronger Together'

Dawn Dierker, Chair, Western Canada Section AWWA

In preparation for this month's magazine report, I started thinking about this year's Western Canada Water Conference theme, 'Stronger Together.' I wanted to understand what that means for each of us as individuals and as constituent organizations. I looked in leadership books and on-line for the definition of togetherness and that led me to several pieces, many written by Steven Covey, on interdependence.

Covey says, "Interdependence is a choice only independent people can make." Those of you that are familiar with Stephen Covey's work know that in his book *The Seven Habits of Highly Effective People*, he says that we move from a state of dependence to one of independence and then reach a higher consciousness when we become interdependent. Our conference theme of 'Stronger Together' demonstrates that, as organizations (not just individuals), we become more effective and have a larger influence in our industry when we become less focused on our differences and concentrate on becoming interdependent.

If we look at the wheel that represents all of our organizations, we see that each of us has a part to play in the continuous improvement of the water community; but together we can have a much stronger voice and influence.

Ryunosuke Satoro, the Japanese poet said (very appropriately for our organization), "Individually, we are one drop. Together,

we are an ocean." In the coming year, as individuals and as Constituent Organizations of Western Canada Water, let us focus not on

our differences, but what we can do together to improve the lives of our customers and the influence of our organization. 💧





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 Let's Solve Water



WEFMAX, WEFTEC and the hunt for volunteers

Ross Webster, WEF Director

It has been a slow start

to this summer with the long cold winter that wouldn't end, but hopefully by the time you read this everyone will be busy trying to catch up and get everything done before the summer break.

I'm still preparing for our mid-year meeting, WEFMAX (Water Environment Federation Member Association Exchange), in May where we will hear the latest updates from WEF and an update from our workgroups (Non Dispersibles, Member Association Sustainability, Strategic Planning and Member Association Leadership Development).

Registration and housing are now open for WEFTEC 2014, the Water Environment Federation's 87th Annual Technical Exhibition and Conference scheduled for September 28-October 1 at the New Orleans Morial Convention Centre in New Orleans, Louisiana.

WEFTEC is the premier water event for those looking for best practices, innovative technologies, and solutions for sustainable and effective water management. This year has expanded programming on resource recovery, including a new focus on the gas and oil industry. To date, the 2014 technical program includes approximately 1,000 expert speakers, 140 technical sessions, 31 workshops, and eight local facility tours. The exhibition provides access to more than 900 exhibiting companies and technical experts who will show the latest developments, research, solutions and cutting-edge technologies in the field. There is truly something for everyone and it almost impossible to see it all and I have tried! My term as WEF delegate will officially end in New Orleans at WEFTEC 2014.

As a lead up to New Orleans, I will be taking in the WCW Annual Conference and Exhibition in Regina from September 23-26 and hope to see you all there!

Our technical committees at WCWEA are still looking for volunteers to help plan events and training opportunities.

Contacts are:

- **Laboratory Practices**

Chair Klas Ohman
ohmank@ae.ca

- **Wastewater Treatment Design**

Chair Barbara Chaput
barbara.chaput@aec.com

- **Residuals and Biosolids**

Chair David Curran
david.curran@edmonton.ca

- **Water Reuse**

Chair recently stepped down, searching for a replacement.

- **Watershed Management**

Chair George Bontus
gbontus@insituform.com

I can be reached at: ross.webster@wspgroup.com if you have any questions or suggestions. 💧

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Busy is good, but challenging

By Jeffrey Halliday, Chair, WCWEA

We are all busy. This is generally a very good thing. Municipalities are growing, resulting in a larger tax base to fund infrastructure works, and businesses have a long list of active projects.

However, the strong economy in western Canada presents many challenges that limit our free time. In the public sector, operators and engineers are expected to do more with less while managing a growing infrastructure deficit. In the private sector, the need to make shareholders happy and the difficulty finding experienced staff means fewer people must shoulder a greater proportion of the work. Add a focus towards developing a healthy work/life balance to this and most of us have very little 'free time' remaining.

Although it is great for business, the robust economy in Western Canada makes it very difficult to carry on effective operations of a volunteer-driven organization such as the WCWEA. Too often, we see the same people stepping into volunteer roles for multiple terms. Although we greatly appreciate the efforts of our dedicated volunteers, we are concerned about sustainability and volunteer burnout. Finding new members to serve on our boards and committees is a vital component to the longevity of the WCW and its constituent organizations. If you have never volunteered with the WCW before, it is an excellent way to develop lasting relationships with colleagues in your industry. The WCWEA has several vacancies currently available. If you

are interested in joining and helping to strengthen our organization from within, please contact our Executive Director Audrey Arisman or me.

Engaging our new professionals is an excellent way to strengthen our organization and develop those individuals who will eventually become leaders in our industry. As such, I am very happy to announce that WCWEA has been very fortunate to have an energetic new professional step forward to Chair our YP Committee. Adan Issa is an Engineer-in-Training with the Water and Process Technologies department of GE Power and Water. He has hit the ground running making connections with the WEF Student Chapter at the University of Manitoba and is working hard to populate his committee with WCWEA Members from each region within WCW. If you or someone you know is a new professional and a member of WCWEA who is interested in getting involved, please contact us.

In addition to our YP Committee, the WCWEA Technical and Professional Activities Division provides several opportunities to get involved, network with like-minded individuals and learn about emerging issues in our industry. Our TAPA Committees are as follows:

- Laboratory Practices: Klas Ohman, Chair (5S Member and former Board Member)
 - Wastewater Treatment: Barb Chaput, Chair
 - Residuals and Biosolids: David Curran, Chair (Board Member, Alberta Trustee),
 - Water Reuse: Chair recently stepped down, searching for a replacement
 - Watershed Management: George Bontus, Chair (5S Member and former Board Member)
 - Young Professionals: Adan Issa, Chair
- These committees all need volunteers and your participation would be very valuable to sustaining our organization.

With your help, we can achieve the Western Canada Water Vision of "Working Together for Water." 💧

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Front office change and annual seminar in Banff

Andy Bebbington, AWWOA Director



At the time of writing this, spring runoff is in full force so everyone is hard at it.

Our Executive Director, John Voyer, has resigned and is moving on to new challenges. We thank John for all of his hard work and professionalism. He has done an excellent job for us, and we wish him all the best in the future.

At this time we have started putting information together in order to start proceedings to replace John.

I would like to thank Cathie Monson as she is taking on extra work and keeping the office afloat until a new executive director can be found.

The Closer to Home project is now wrapped up and the courses are in the development stage (see last issue's report). Everything else is ongoing with a full slate of courses in the offering.

The annual seminar in Banff was a great success yet again and a number of successful people received awards. They are as follows:

- Gerald B Samuel Operator of the Year award went to Steve Solic from the Town of Tabor (EPCOR).
- Ron Bayne Service award went to Al Kendrick from the Town of Drumheller.
- There were two recipients of the Steve Blonsky Honorary Life Membership: Del Morrison and Gerald Samuel.
- The NAIT Award recipients for the highest marks in the Water & Wastewater Technician course were Jesse Skwaruk from NAIT Edmonton and Wei Zhang from NAIT Calgary.

Congratulations to all of you. It is always great when people are recognized for all of their hard work. 💧



Gerald B Samuel Operator of the Year award winner, Steve Solic.



Al Kendrick, receiving the Ron Bayne Service award.



Jesse Skwaruk from NAIT Edmonton.



Wei Zhang from NAIT Calgary.



As the seasons march on

Chris Hanson, MWWA Chair

I hope that everyone is having a great summer and also has a chance to get in some holiday time! Apparently we Manitobans shivered through the coldest stretch of December and January in 65 years – and second coldest winter in 116 years – since 1898.

Only 1949 was colder, but, on the plus side we didn't have any -40s this year, which is quite remarkable, and currently there are no serious flood warnings or watches!

Speaking of summer, our annual Golf Tournament will be held in Winkler on June 6 and we are looking forward to seeing some old friends; and some new participants will be joining us this year we hear, possibly from Saskatchewan.

The MWWA Education Committee and staff have been working hard planning the spring and fall workshops. Please check the MWWA website regularly or call Terra or Iva at the MWWA office for workshop updates.

Our congratulations go out to former MWWA Board member Ken Smyrski. Ken was a 20-year member of the MWWA and is retiring after 37 full-time years of service in wastewater treatment with the City of Winnipeg. Enjoy your retirement Ken!

Congratulations also to our 2014 Operator of the Year, Ken Moore, from the RM of Pipestone/Reston, who has also decided to join the ranks of the 'under-employed.'

Last, but not least, the 2015 Conference Committee has been busy planning the MWWA Annual Conference and Trade Show to take place in Brandon on January 11-14, 2015. They have great plans for an exceptional event, and are looking forward to seeing attendance by our many members from across the province.

In closing, if anyone has any questions, comments or concerns, please call the office at Toll free 1-866-396-2549. Have a great summer, and hope to see you in September at WCW Conference! 💧

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New communication tools proving popular

Kelly Kish, SWWA President

Greetings from Saskatchewan! First, I must say a huge thanks to all the SWWA members who have been calling and emailing to let the SWWA board know how much they like the new website look and are excited about the move from a newsletter to a magazine with the *Pipeline*.

Things are on the move here; we have the golf tournament coming up May 30, 2014 in Nipawin and we are looking forward to seeing all those who are coming out. According to Google, the day is going to be sunny and a beautiful +24 with not a cloud in sight. Conference planning is almost complete. The June *Pipeline* edition will have all the Conference information. It is expected to be in mailboxes for June 8. We have an incredible lineup of workshops, technical sessions, entertainment and a keynote speaker. You will

not want to miss this exciting Conference. We are also excited to continue our partnership with WaterCan through silent auction and 50/50 ticket draws. Looking to become a volunteer? SWWA is looking for individuals who would like to volunteer some time to help out during the annual Conference. Contact Calle at the office for more information.

Special THANKS to our Conference sponsors who help us keep the costs down for the members who attend. Please be sure to thank the reps of the sponsor companies when you see them. Please be sure to keep in mind who you would like to nominate for Supplier of the Year. Nomination forms will be available in the upcoming *Pipeline*.

Thanks to all our workshop instructors: Paul Payette with Anderson PumpHouse, Don Ball with Xylem, Tracy Helmink and Marlin

Nelson with SaskWater, Tom Cameron and Don Bishop with AquaData Atlantic and Bishop Technologies, Dale Heshka with the City of Melville, Don Burgess with DWG Process and Dawn Dierker from SaskWater. We are very privileged to have quality instructors for our members every year that create a phenomenal lineup of workshops.

The SWWA website is now fully operational and we expect the online database to be up and running by the time you receive this. Members will now be able to register for courses online, check the status of workshops through their online profile and view all workshops they have participated in for the 2014 year.

Be sure to go online and register to receive updates as they are available on the SWWA website.

Till next time! 💧

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water for people

WFP's 2013 successes

Darlene Kindrat

When one person or one family has clean, accessible water, their lives are changed. But when entire regions and countries have water, the world is changed (www.waterforpeople.org/about).

'Water for everyone, forever' is what Water For People (WFP) is striving for. When all people have safe and continuous water supplies, WFP's job will be done.

Below are a few of WFP's favourite 2013 program highlights from the field:

- Co-financing, an important indicator of the ability of local institutions and communities to sustain their own water and sanitation services, reached an incredible level – globally, 37% of expenses were covered by communities, governments, and public institutions!
- The district government of East Medinipur, West Bengal, India, is planning to provide the funds to enable the replication and scaling of school programming beyond the Water For People-supported areas to the entire district, reaching over 700 schools!
- In its fifth year, the Water Users Association program (responsible for managing community water points in peri-urban Blantyre, Malawi) continued thriving. By the end of 2013, 550+ people had been employed since the program's inception; and almost 300,000 people now have an improved level of water service.
- 2013 brought the first full cycle of our Re-Imagine Reporting (RiR) program. RiR is both an online platform and a process that requires each country program – staff and local partners – to collaboratively analyze successes, challenges, and progress toward their Everyone Forever goals. These reflection sessions, combined with financial and monitoring data, enable us to improve programming moving forward. You can access RiR on the Water For People website.
- In Honduras, a consortium of nine organizations, including Water For People-Honduras, is collaborating to drive Everyone Forever to the national level, and in Bolivia, 10 municipalities are replicating (and independently funding) Everyone Forever with only technical support from Water For People and 30 more municipalities are committed to learning the approach.
- Launched in 2010, our Sanitation as a Business program, which works to incentivize and support local businesses rather than handing out toilets, reached some significant milestones in 2013. To date, we have seen over 50 sanitation enterprises emerge, employing over 100 people, and over \$1,000,000 invested into sanitation by households under the project!

And the momentum is carrying on into 2014. The information is from a bulletin sent out by WFP.

WFP Committee News:

The Calgary Committee held its second annual Curling Bonspiel on April 2. The event sold out, Gordon Smith talked about his work overseas and money was raised for WFP. Overall, it was a very fun and successful evening. The winning rink is pictured below:



Registration is open for the Western Canada Water 2014 Annual Conference and Exhibition. This year the Conference is being held September 23-25 in Regina, SK. The theme is "Stronger Together." For information and to register, go to the Western Canada site www.wcwwa.ca.

For more information on Water For People Canada, contact Paul Klassen or Anne Bridgman, Co-Chairs of WCS — AWWA Water For People Committee: paul.klassen@neeganburnside.com or anne.bridgman@ctwcalgary.com. To learn more about WFP, visit www.waterforpeople.org. 💧

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- Within the pages of each issue, we actively encourage our readers to REUSE and RECYCLE.
- In order to reduce our carbon footprint on the planet, we utilize a carbon offset program in conjunction with any air travel we undertake related to our publishing responsibilities for the magazine.

*So enjoy this magazine...and **KEEP THINKING GREEN.***

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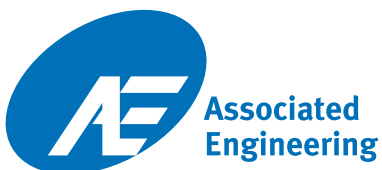
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