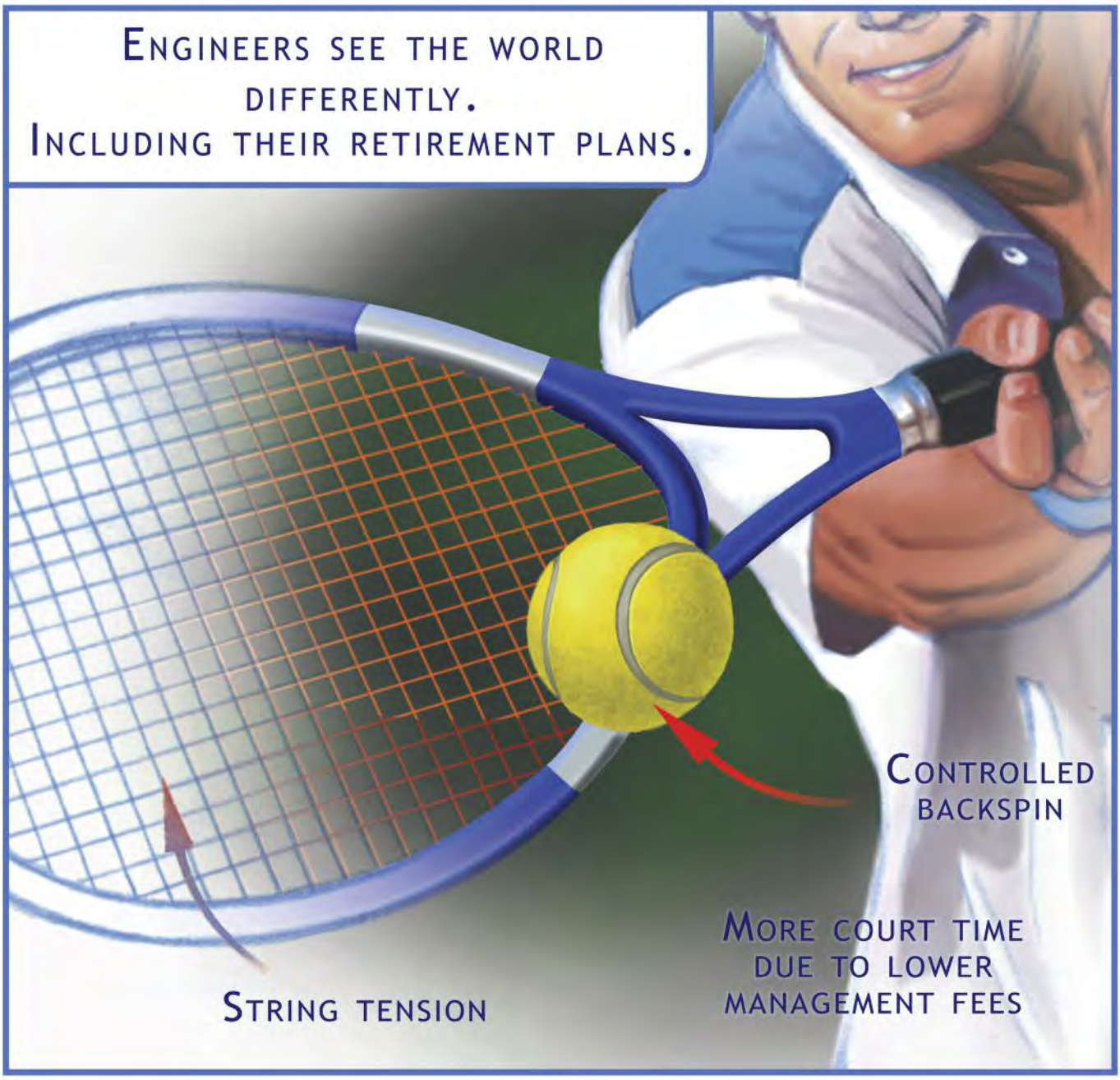
THE PROFESSIONAL

# EDGE

ISSUE 136, JANUARY/FEBRUARY 2012

## PROFILES IN ACHIEVEMENT

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# Achieving a Safe and Prosperous Future through Engineering and Geoscience


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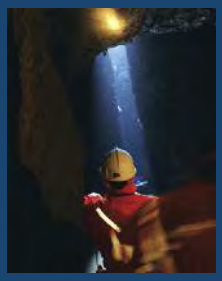

**COVER:** Golden Band Resources Inc. - Roy Lloyd Mine underground, where open pit has broken through into mined out stope.



# President's Report

**In this issue of *The Professional Edge* we celebrate "Profiles in Achievement".**

**As I thought about the various achievements that my company has made over the years, one of the most important has been the recognition that sustainability has to be part and parcel of every design. It is something that we all have to come to grips with as we live our everyday lives.**

Paul Simon in the song "Born at the Right Time" says "the planet groans every time it registers another birth." The current facts are sobering. With the human population hovering at 7 billion today and with nearly a billion hungry, the demand for food, energy and water is staggering. The pressure does not let up the population is expected to grow to 9 billion by 2050. To meet this demand, world food production must at least double.

Sustainability touches on a number of areas of engineering and geoscience, but primarily focuses on minimizing impact. Mosaic has placed approximately 21,000 acres of sensitive habitat into permanent conservation easement. In our phosphate mining areas we reclaim an acre for every acre we mine touching on almost every form of environmental engineering, from ground water preservation, reforestation, to surface water drainage and land contouring. We have focused on conserving water in our operations and have reached a level of approximately 90 per cent reused or recycled. We are also focusing on energy conservation and energy reduction.

Mosaic is one of many companies making this journey but we need to move beyond trying to modernize our production assets, in some cases built in the 1950s. We must also embrace new technologies in our production facilities. In potash, in the province of Saskatchewan, we are largely reinventing our production facilities through expansion and debottlenecking.

It is a time to go beyond replacing what is already there but seeking and in some cases taking a risk on technologies that will reduce energy consumption, improve recovery, and reduce tails production. Most companies try to avoid risk so it is an interesting set of circumstances we find ourselves in. On the one hand shareholders want to see a determined effort in sustainability but are largely unwilling to support untried technologies. Society as a whole is going to have to start getting behind these initiatives.

Sustainability is not just the domain of large corporations, it is everyone's responsibility and here is the big shock, we don't have all the answers. We are going to have to try a few things and here is a bigger shock, not every one of them is going to be a winner.

I'll give you an example. I am a car nut and a motorcyclist. If it burns fuel, I am a fan – I even get a kick out of the lawn mower. The problem is that I am not alone. There are billions of us that like transportation that goes beyond our feet. The amount of oil that is required is shocking. World oil consumption has grown from 54 million barrels per day in the 1980s to currently nearly 90 million barrels per day.

Whether you believe in anthropological global warming or not, this rate of consumption of a non-renewable resource is not sustainable. I can't help but notice that every time the cost of energy dips, trucks and SUVs jump to the top of the sales boards. Higher fuel prices will

change our behaviors but we need to put real efforts into things like hydrogen fuel cells, high efficiency fast cycle batteries, higher efficiency engines and public transportation (I had a tough time typing this).

We have options, in the short term. Especially in our climate, we should be doing everything we can to conserve energy. It is interesting that, with the house building boom we see in Saskatchewan, we are picking at the edges of conservation: high efficiency furnaces, triple pained windows and so on. but we could certainly be doing more.

Grant McVicar, Director of Energy Conservation / Director of BioEnergy and BioResources (Saskatchewan Research Council), has done research into just how efficient our houses can be and the results are extremely encouraging. However, our typical assessment when buying a home is to consider the incremental cost of upgrading energy efficiency in terms of how long we plan to live in the house, rather than considering how long the house will stand and how much energy it will use throughout its lifespan. We need to think beyond our own tenure. Government could play a significant role by raising building standards. The particle board based McMansions are not encouraging.

So what's the bottom line? If we are truly going to embrace sustainability, we will need to go beyond recycling bottles and newspapers. We will need to make real changes to our lifestyles and grab a heaping helping of global perspective. Engineers and geoscientists will be at the forefront of these changes. We just need to develop the personal, corporate and government will to make it a priority. Now, where did I leave the keys to the Porsche. ...

Peter J. Jackson, P.Eng.
President


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**www.apegs.sk.ca**

# A Gallery of 2011 Engineering and Geoscience Projects

**Usually, our job at *The Professional Edge* is telling Saskatchewan engineering and geoscience stories to APEGS members. This month, we're turning the tables. We invited APEGS members to send us pictures and descriptions of their proudest achievements from 2011.**

**We want to thank the contributors to this special feature. For those of you who didn't contribute this year, we will be doing this again next year, so keep your cameras handy to capture your 2011 engineering or geoscience success stories.**

COMMUNITIES OF TOMORROW
Advancing Municipal Infrastructure Innovation

## Communities of Tomorrow Service Connector Project

**A work crew uses the Service Connector excavation cage and winch.**

### The Institution:

Communities of Tomorrow (CT) is positioning Saskatchewan as a global leader in this field of municipal infrastructure innovation, by creating Canada's first infrastructure innovation hub. The arms-length agency is bringing together industry firms, municipalities, research organizations, and other stakeholders to find and develop new, smarter, infrastructure solutions.

### The Achievement:

Communities of Tomorrow created the End-to-End Service Connection Design project after a brainstorming session with municipalities identified repairing and replacing municipal water service connections as a top issue.

The result was a new kind of excavation cage and associated pipe-winching device, and a call for a re-design of the traditional curb stop water shut-off valve used by most cities.

It is estimated that these solutions could save cities approximately 40 per cent of the current cost of service connection replacement, and significantly reduce the street and property excavations required.

### The Team:

To work on solutions to the issue, engineering and public works staff from seven cities joined with business experts as well as researchers from the National Research Council, University of Regina, SIAST and the Saskatchewan Research Council.

Golden Band
RESOURCES INC

# Golden Band Resources La Ronge Mine

**Gold Pour, Jolu Gold Mill, 2011**

## The Institution:

Golden Band Resources, already Saskatchewan's leading gold explorer, is now its newest gold producer. Golden Band is a Saskatchewan-based, publicly listed company whose focus is the long-term, systematic exploration and development of its La Ronge Gold Belt properties.

Active in the La Ronge Gold Belt since 1993, the company is aggressively pursuing its near-term goal for the development and production of its Bingo, EP, Komis, and Golden Heart gold deposits, with processing at its Jolu mill. Longer-term objectives include production from the company's other deposits and the continuation of its highly successful exploration and acquisition strategy.

## The Achievement:

It was no joke – effective April 1, 2011 the company's 100 per-cent-owned La Ronge Gold project in northern Saskatchewan attained commercial gold production from the Roy Lloyd Mine and Jolu mill.

By November, the company was able to report income - $4.5 million – for the first time in its history.

"We have reached the last milestone of Golden Band's Plan for Production with this significant achievement. Our goal is to now build on the established level of production by bringing two new mines, EP and Komis, on stream within the next twelve months. This will see us increase our production level to the 70,000-ounce gold per year mark. We are also embarking on a program to replace reserves and increase our resource base for longer term future production," Ron Netolitzky, Executive Chairman, said.

## The Team:

APEGS members on Golden Band's senior management team include: Rodney Orr, P.Geo., MBA,VP of Corporate Development; Klaus Lehnert-Thiel, P.Eng., P.Geo., Ph.D. Geology, Director, and recipient of the 2010 APEGS Outstanding Achievement Award; and John Tosney, M.Sc., P.Eng., Director, and recipient of the 2005 APEGS Outstanding Achievement Award. As well, the company employs a team of approximately 11 senior and junior engineers and geoscientists.

Saskatchewan Watershed Authority

# Saskatchewan Watershed Authority's Flood Management

## The Institution:

The Saskatchewan Watershed Authority (SWA) leads management of the province's water resources to ensure safe drinking water sources and reliable water supplies for economic, environmental and social benefits for Saskatchewan people.

## The Accomplishment:

In spring 2011, Southeast Saskatchewan faced run-offs greater than any in recorded history. The catastrophic event put to the test the province's extensive system of weather forecasting and flood management.

SWA staff advised communities on flood mitigation techniques and helped put them in touch with resources. They distributed over $22 million for flood prevention structures – mainly simple ditches, berms and sandbags. In the aftermath of the flood, they also helped property owners get in touch with funding to help turn temporary flood barriers into permanent flood prevention structures.

SWA was also responsible for managing the region's major water control structures, the Rafferty-Alameda Dams. Although flood waters ultimately proved too much even for these massive structures, the dams gave engineers a level of control over flood waters that they would not have otherwise had.

## The Team:

SWA employs roughly 80 engineers, geoscientists and support technicians to manage the various aspects of the agency's mandate.

**Rafferty Dam with floodgates wide open.**

SaskPower

# SaskPower's Red Lily Wind Project


**Late night construction of a Red LilyWind Project windmill. Inset: Algonquin Power Co. provides operation and supervision services to the project.**

## The Institution:

SaskPower is the principal supplier of electricity in Saskatchewan, serving more than 460,000 customers and managing $4.5 billion in assets. The company operates three coal-fired power stations, seven hydroelectric stations, four natural gas stations and three wind facilities as well as managing purchase agreements with alternative energy suppliers such as the Meridian Cogeneration Station and SunBridge Wind Power.

## The Achievement:

Saskatchewan's newest wind power facility became operational in February, 2011. Located northwest of Moosomin, the Red Lily Wind Project is adding another 26.4 megawatts (MW) of clean, renewable power to the province's electricity system.

The Red Lily Wind Project was selected through a SaskPower solicitation to partner with independent power producers to build and operate small-scale electricity generation projects that produce no new greenhouse gas emissions. SaskPower has a 25-year agreement with the Red Lily Wind Energy Partnership, which is owned by Concord Pacific, to purchase power from the facility. Operation and supervision of the facility will be provided by Algonquin Power Co.

SaskPower is currently in the midst of a competitive solicitation to procure up to 175 MW of wind power from one or two large-scale wind facilities through the Green Options Plan. An additional 30 MW of wind from three projects will also be added through the SaskPower Green Options Partners Program.

## The Team:

Dozens of engineers employed by SaskPower and the Red Lily Wind Energy Partnership.

# Saskatchewan Research Council's Pipe Flow Technology Centre™

## The Institution:

The Saskatchewan Research Council (SRC) is Saskatchewan's leading provider of applied research and development as well as technology commercialization.

With over 400 employees, $63 million in annual revenue and 64 years of R&D experience, SRC provides services and products to its 1,900 clients around the world.

## The Achievement:

The Pipe Flow Technology Centre™ at the Saskatchewan Research Council (SRC) will become one of Canada's first research facilities equipped to handle hazardous explosive materials such as crude oil, thanks to an expansion announced last March.

The SRC is expanding an existing explosion-proof building at the centre to accommodate research on light and heavy crude oils and refined petroleum products, all of which are flammable and require special equipment for safe storage and handling. This new facility will house a four inch diameter pipe loop that, in addition to handling volatile mixtures, will be designed for high temperature and high pressure test conditions. With these new research capabilities, the centre can test a wider range of substances and operating conditions and help the provincial and national, oil and gas industry enhance oil recovery, reduce operating costs and improve processes.

SRC's Pipe Flow Technology Centre™ is acknowledged as an international leader in its field and has collaborated with Canadian and international clients on a range of ground-breaking pipeline and fluid mechanics applications.

## The Team:

The Pipe Flow Technology Centre™ team (pictured below) includes Doug Soveran, P. Eng., Melissa McKibben, P. Eng., Darren Riley, Lesley McGilp, P. Eng., Daniel Zacharias, Randy Gillies, P. Eng., Melanie Skoretz, Curtis Knops, Ruijun Sun, P. Eng., Paul Schergevitch, and Ryan Spelay, P. Eng.

# Stantec's Biostimulation Remediation Project


**Workers installing recovery wells around a house.**

## The Institution:

Stantec Inc. is a Canadian professional services company and one of the leading firms in the design and consulting industry. Founded in 1954, Stantec provides planning, engineering, architecture, project management and other related services to its clients. Federated Co-operatives Limited (FCL) is owned by about 265 member co-operatives across Western Canada. Among its many operations is its Regina Co-Op Refinery Complex.

## The Accomplishment:

Stantec was retained by FCL and the Pioneer Co-operatives Association Limited (Pioneer Co-op) to design and implement an innovative remediation program for an occupied residential property that was adversely affected by adjacent fuel-related activities. An environmental assessment concluded that the soil and groundwater beneath the home contained petroleum exceeding acceptable guidelines.

The main concern was the potential for gases from the petroleum seeping into the home. The project team was instructed to ensure that the residence remained functional throughout the project. The remediation also had to happen in a short timeframe in order to protect human health and restore the value of the property as quickly as possible.

The Stantec and FCL project teams designed and implemented an engineered biostimulation approach, which coupled physical and biological removal processes. The initial stage used a multi-phase vacuum extraction system to physically recover hydrocarbons. The program then used enhanced anaerobic bioremediation, where soil nutrients were used to degrade the petroleum in the soil.

The successful remediation program was completed in less than two years and at a cost of less than half of other viable options. The project was recently awarded the Consulting Engineer of Saskatchewan's Brian Eckl Award.

## The Team:

The engineering team leaders included, on the Stantec side, Chris Mathies, P.Eng. and Wenhui Xiong, P.Eng. and, on the FCL side, Kris Bradshaw, P.Eng. and Kimberley Tang, Engineer-in-Training. The engineering team relied on the expertise and assistance of an extensive team of other science professionals.

# Member Profile

**This month *The Professional Edge* chats with Kathy Wang, P.Eng., an electrical engineer working with SaskPower in Regina.**

**Tell us about your personal and professional background.**

I was born in Shanghai, China where I lived for 15 years.We came over as part of a family reunification. My dad was studying at the University of Saskatchewan so my mother and I eventually joined him, coming over in 1992.

**As a teenager, what were the biggest differences between home and here?**

Well, the weather of course. Also, the big differences in population. I was used to very large, heavily populated cities so it was a whole different perspective for me to live in a place where there aren't many people around.

The school systemwas also very different. In China, they put a very heavy influence on math and science so,when I came here, those courses seemed simplistic in comparison. Some of my science labs in high school were at a level that I had already taken in junior high school in China, so the Canadian science classes became,more than anything, opportunities forme to practicemy English.

**Why did you choose to go into engineering?**

Coming from the Chinese school system, with its heavy emphasis on math and science, I just thought engineering was the obvious, logical thing to do. I wasn't even really exposed to or aware of other professions. Plus – although I hate to admit it – my dad, who is a mechanical engineer, probably had some influence on my decision.

**What was your biggest challenge in college?**

The style of teaching was definitely an adjustment. In high school and junior high school – in Canada and especially in China – I was used to a style of instruction in which the teachers led the students and everything is aimed towards what's going to be on the exam. In university, there was much more of a focus on thinking on one's own and doing studying and research on your own time.

**What was your first job after college?**

The job I have right now! I was hired by SaskPower out of college in 2000 and I've been here ever since.

**What do you feel was your greatest accomplishment as an engineer?**

At SaskPower I used to work on designing substations. I've designed six of them altogether. That's been very satisfying, watching those projects go from start to finish. I've watched them go from designs on paper to a work site out in a farmer's field and finally to the finished station, designed to last for years, distributing power to customers. I find it very satisfying to drive by one of those and see it in operation.

**What are your interests outside of work?**

My boyfriend and I like to travel. We've been to China several times, to Australia, as well as to many places overseas and Canada and the US.

We particularly like to go on motorcycle adventures. I don't drive motorcycles but I enjoy riding on the back while my boyfriend drives. We've driven through the mountains to places like Kelowna and Yellowstone National Park. Those trips can be a bit tough. We once drove through the rain for several days and weren't really prepared for it. It's a great way to travel. You get to enjoy the smell of the trees and the flowers – and the skunks! I really love taking in the scenery going past although sometimes it's a bit too relaxing; a couple of times I've almost fallen asleep, which you just can't do on a motorcycle.

**Who has had the greatest influence on your life and career?**

In terms of my career, I would say my first mentor here at SaskPower, Bob Mader, P.Eng. He was a great engineer but had a very humble manner about him. He had a way of dealing with other people so that they never felt silly and always felt respected. He always showed a lot of interest about my background in China. We went on many road trips together and he helped educate me about Saskatchewan because he could talk at length about the geology and background of every piece of land in the province. He also went out of his way to help me get settled in Regina by helping me make connections in my job and in the community.

In terms of my life in general, I would have to say my boyfriend.We've been together now for seven years. He's taught me to be more patient – which, you know, can be difficult sometimes as a girlfriend! He is a small business owner so he has also helped me to learn to be more flexible and think outside the box which is an important skill.

## APEGS Chosen as Pilot Test Site

# Competency-Based Assessment of Engineering Work Experience Project

BY TINA MAKI, P.ENG., DIRECTOR OF REGISTRATION

**APEGS has been participating in a national project facilitated by Engineers Canada to further improve assessment of engineering work experience.** This project has received funding in the amount of over $780,000 from Human Resources and Skills Development Canada (HRSDC). The project objectives are to improve equity, transparency, consistency, clarity, efficiency and mobility, all while maintaining the high standards required for professional registration. Progress to date has been excellent and the project has come to the point where a pilot test of the competency-based system is required. We are pleased to report that APEGS has been selected as one of two pilot sites along with Professional Engineers Ontario.

Competencies are developed through experience and the application of skills, knowledge and abilities. There is a global trend in assess-ment of qualifications towards competency-based evaluation as a more reliable means of ensuring acceptable behaviour will be demonstrated in the practice of a professional. One of the basic tenets of competency-based assessment is that past behaviour is the best predictor of future behaviour. Competency-based experience reporting is a means for an applicant to show the assessment body how they have displayed a required competency in the past. The competency-based system also better defines what the minimum acceptable standard. One of the objectives of APEGS is to ensure the proficiency and competency of members in order to safeguard the public, so any means to improve the system is important for us to consider.

**The current list of engineering competencies, which are still evolving and being developed, is as follows:**

**A. Apply engineering knowledge, methods and techniques**

**DEFINITION:** Solves engineering problems using appropriate theoretical and practical engineering principles

**B. Use engineering technology, tools and equipment**

**DEFINITION:** Uses appropriate technology and engineering tools based on sound understanding of engineering principles.

**C. Safeguard public safety**

**DEFINITION:** Practices engineering activities holding paramount the safety, health and welfare of the public, the protection of the environment, and the safeguarding of economic interests.

**D. Recognize the impacts of engineering and the environment, economy and society**

**DEFINITION:** Develops engineering solutions that are based on a sound understanding of their impacts on the environment, economy and society.

**E. Manage engineering activities**

**DEFINITION:** Applies the principles of sound management when conducting engineering activities including individual work.

**F. Communicate engineering information**

**DEFINITION:** Effectively communicates engineering information verbally, graphically and in writing.

**G. Work collaboratively in a Canadian environment**

**DEFINITION:** Works effectively within the Canadian context to achieve societal, organizational and project goals in a collaborative manner.

**H. Maintain and enhance engineering skills and knowledge**

**DEFINITION:** Takes actions to maintain and enhance proficiency in the practice of engineering activities.

Details on the specific "*Indicators*" that have been developed to correspond with each competency can be found on the Engineers Canada web site, **www.engineerscanada.ca** under Projects, Competency-Based Assessment.

## What does this project mean for the future of work experience assessment at APEGS?

The project is still in the pilot phase, and it is yet to be determined if APEGS will make the shift to the competency-based experience assessment system being tested. At a minimum, expect to see improvements in how we assess work experience for both engineers and geoscientists. APEGS plans to move towards on-line experience reporting but that process will not be initiated until any changes arising from the Competency-based project are put into place. Our best estimate is that on-line experience reporting would be in place in mid-2013 at the earliest because the Competency-based assessment project will be completed in December 2012.

For further information on the project, please contact Tina Maki, P.Eng., Director of Registration.

# WE NEED YOUR HELP!

## Volunteers needed by February 10, 2012

Will you have at least four years of engineering work experience by April 1, 2012 and still have work experience to be reported to APEGS?

## We need volunteers for the pilot of the competency-based project:

# 15
## Engineers-in-Training

**to prepare competency-based experience reports. All forms and guidelines will be provided, as well as an orientation. Supervisors (and mentors if required) will need to review and sign off reports.**

* **You don't need to have written the Professional Practice Exam** in order to volunteer for this project. Also, you would qualify to write the spring 2012 Professional Practice Exam even if you have not submitted any work experience reports previously (normally, you would need at least one completed experience report submitted to our office in order to write the PPE).
* **Your current status of experience reporting will not affect your eligibility to volunteer.** As long as you still have work experience to be reported to APEGS, you can volunteer.
* **A variety of disciplines are needed.**
* **Applicants who received their bachelor degree outside Canada** (international engineering graduates) are strongly encouraged to participate.

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## Professional Engineers

**who will act as Assessors on behalf of the Experience Review Committee. Some current Experience Review Committee members will occupy some of the twelve positions, but we also need some professional engineers who have a fresh perspective and do not have any experience in assessing reports.**

* **Employers of professional engineers** – we are requesting that interested members be permitted the time to participate as a volunteer Assessor.

**Experience that is assessed as part of the pilot will be for real, and will be counted for experience credit towards professional registration.**

# HOW DO I VOLUNTEER?

**Please contact Tina Maki**
**by February 10, 2012**
**Email: tmaki@apegs.sk.ca**
**Tel: 525-9547**
**Toll-free: 1-800-500-9547**

**Provide your name and a short paragraph description of the discipline in which you are working. All those who have expressed interest will be contacted as soon as possible to inform them if they have been selected.**

## Time Commitment Required of Volunteers

### Engineers-in-Training:

* **One-hour orientation in February 2012** to get you started writing reports likely done via webinar.
* **You will write reports during March and April** and have them signed by supervisors. Reports are due by May 1, 2012. You can expect the result of your competency-based experience assessment in July 2012.
* **Feedback session to the project consultants** after having completed the process – approximately four hours in June or July.

### Professional Engineer Assessors:

* **One-hour orientation session** in May 2012 to introduce you to the project. This will likely be done via webinar.
* **Two day training session sometime in May 2012.** Expenses will be reimbursed. This will be considered a professional development activity and hours spent may be counted under Formal Activity and/or Participation (see the Continuing Professional Excellence (CPE) Member Guidelines for more detail).
* **Assessment of reports** prepared by engineers-in-training will take place in June 2012 as follows:
  - Assessors will be assigned three reports each to assess in groups of two.
  - One report will be assessed during the training session.
  - The second report will be assessed after training with help from project consultants.
  - The third assessment will be done independently (this is part of the test to see how Assessors are catching on with the training and manuals provided).
* **Feedback session to the project consultants** after having completed the process – approximately four hours in June or July.

# MLA Reception

**The Honourable Jim Reiter, Minister of Highways and Infrastructure and Minister responsible for The Engineering and Geoscience Professions Act, brings greetings.**

**Leader of the Opposition John Nilson brought greetings on behalf of the Official Opposition.**

APEGS held its 11th annual MLA Reception on Wednesday, December 14, 2011. The reception provides an opportunity for all MLAs to meet informally with members of APEGS Council, APEGS Past Presidents and committee chairs to discuss a variety of issues related to the engineering and geoscience professions.

**Councillor John A. Styles, P.Eng. representing Geological, Mining, Petroleum, Geophysics and Geoscientists (left), Vice President Dwayne Gelowitz, P.Eng., FEC and Senator Pana Merchant, the second woman to represent Saskatchewan in the Senate.**

APEGS Vice President Dwayne Gelowitz, P.Eng., FEC presided over a short program which included greetings from the Honourable Jim Reiter, Minister of Highways and Infrastructure and Minister Responsible for Saskatchewan Transportation Company, the Honourable Don Morgan, Q.C., Minister of Justice and Attorney General, Minister of Labour Relations and Workplace Safety and Minister Responsible for the Saskatchewan Workers' Compensation Board, and John Nilson, Leader of the Opposition. APEGS would like to thank the MLAs for attending this event and the volunteers for helping to make the event a success.

# APEGS

# 82nd Annual Meeting

**May 3 - 5, 2012**
**Delta Bessborough**
**Saskatoon, SK**

## Thursday May 3

- Evening Welcome Event

## Friday May 4

- Professional Development Streams
  - Future Challenges
  - Global Impact
  - Local Action
  - APEGS and You
- Professional Development Luncheon
  - Featuring a keynote address from economist and author Linda Nazareth
- Presidents' Reception

## Saturday May 5

- Business Session
- Recognition Luncheon
- APEGS Awards Gala

**www.apegs.sk.ca**

# Navigating the New Normal
# Global Risks - Global Rewards

# Council Notes

**September 22 and 23, 2011 • Delta Regina, Regina SK**

## 14 of 19 Councillors present

- The Registrar reported that as of July 2011 there are approximately 9,600 members not including holders of Certificates of Authorization.
- Council approved the attached three elements of the Canadian Framework for Licensure: Continuing Professional Development, Registration of Engineering Organizations and International Recognition Agreements.
- Council approved the Engineers Canada five-year strategic focus, summary business plan and assessment fees for 2012 and 2013.
- Council was advised that the Legislative Liaison Committee has disbanded but that it may not be dissolved until the issues with respect to an independent scope of practice for technologists has been resolved.
- Daryl Andrew, P.Eng. was appointed as Chair of the Licensee Admissions Committee for a two-year term.
- Council re-appointed Grant Guenther, P.Eng., FEC as Chair of the Professional Edge Committee for a one-year term.
- Andrew Lockwood, P.Eng. was appointed as Chair of the Communications and Public Relations Committee for a two-year term.
- Andrew Loken, P.Eng., FEC has volunteered to chair the organizing committee for the 2012 Annual Meeting in Saskatoon.
- Council was reminded about the 100th Anniversary of the College of Engineering at the University of Saskatchewan. The celebrations will be held September 20-23, 2012.
- Council re-appointed Wes Kotyk, P.Eng. as Chair of the Environment and Sustainability Committee for a two-year term.
- The Engineers Canada Representative reported that the Engineers Canada has established a new committee – the Governance Committee – which will provide a link between the board and the management of Engineers Canada.
- The Geosciences Canada Representative reported that Geosciences Canada has struck a task group to look into incidental practice and mobility. Council suggested APEGS be represented on the task group.
- Council approved the formation of The Registrar's Advisory Committee, to deal with issues of character that arise during the registration process. It will consist of the chairs of the Academic Review Committee, the Experience Review Committee and the Limited Member Admissions Committee.
- Council approved the revised APEGS Good Character Guideline. The reason for the change in the guideline was the impact of a pardon for a criminal offence.
- Council set April 30, 2012 as polling day for the 2012 Council elections.
- Council appointed Shawna Argue, P.Eng., FEC (Chair), Rick Kullman, P.Eng., FEC, Art Opseth, P.Eng., FEC, Connie Barsness, P.Eng., Kyle Krushelniski, P.Eng., Greg Vogelsang, P.Eng., P.Geo. and Dena Burnett, Engineer-in-Training to the Nominating Committee for the 2012 Council Elections.

## In Memoriam

Burnett, James, C., P.Eng.
Melville, Henry E., P.Eng.
Nyman, Jesse D., P.Eng.
Johnston, Lloyd W., P.Eng.
White, Wilbert B., P.Eng.

# Consulting Engineers of Saskatchewan

**The CES Awards were established to recognize achievements within the consulting engineering and geoscience industry in Saskatchewan and provide a forum for recognition of the work done by CES member firms. The CES 2011 Awards were held at the Sheraton Cavalier Hotel in Saskatoon on November 24, 2011.**

**His Honour the Honourable Dr. Gordon L. Barnhart, Lieutenant Governor of Saskatchewan presents the Lieutenant Governor of Saskatchewan Meritorious Achievement Award to Bruce Richet, P.Eng.**

For more information, visit the CES website:
**www.ces.sk.ca**

## Lieutenant Governor of Saskatchewan Meritorious Achievement Award

The Lieutenant Governor of Saskatchewan Meritorious Achievement Award recognizes a Saskatchewan resident for the individual's outstanding achievements and contributions to the consulting engineering and consulting geoscience industry in Saskatchewan, taking into consideration the individual's service to the community.

This year's recipient of the Lieutenant Governor of Saskatchewan Meritorious Achievement Award was Bruce Richet, P.Eng.

## 2011 CES Brian Eckel Awards

The CES 2011 Brian Eckel Awards focus on promoting the talent, expertise and innovation of CES member firms. The 2011 project entries included:

- ENGCOMP Engineering & Computing, Professionals Inc., Ammonium Sulphate Plant Structural Audit
- Associated Engineering (Sask.) Ltd., Dundurn and Area Wastewater Utility
- Stantec Consulting Ltd., Engineered Biostimulation: Successful Remediation of a Residential Property
- J C Kenyon Engineering Inc., The Leader Building Redevelopment
- MDH Engineered Solutions Corp., Regional Groundwater Mapping and Characterization Procedures
- AECOM Canada Ltd., West Regina Bypass Functional Design

## Brian Eckel Memorial Scholarship Award

Each year, CES recognizes the recipient of the Brian Eckel Memorial Scholarship. The scholarship recognizes academic performance and community volunteerism of students pursuing a Bachelor of Science in Engineering degree at the College of Engineering, University of Saskatchewan. This year's recipient was Barrett Taylor.

## 2011 CES Young Professional Award

CES Young Professional Award recognizes achievements of a young professional who demonstrates excellence in: his/her field of expertise; the business of consulting engineering/geoscience; dedication to his/her consulting engineering/geoscience association and community; as well as increasing awareness of the value of young professionals in the Saskatchewan consulting engineering/geoscience industry.

This year's award was presented to Geoff Sarazin, P.Eng.

engineerscanada

ENGINEERS CANADA CEO REPORT

# Canadian Prosperity and Our Capacity for Innovation

Engineers Canada believes that the federal government, working alongside businesses, academia and other stakeholders, is a valuable and necessary contributor to improving research and development (R&D) and innovation in Canada.

Engineers Canada actively and regularly contributes to discussions with policy makers on important issues for the engineering profession, such as R&D and innovation. We were asked to contribute recommendations to the Expert Review Panel on Research Development, and we are pleased that many of our recommendations were taken into consideration in their final report, Innovation Canada: A Call to Action, released this past October.

Engineers Canada's recommendations are to direct programs to specific R&D areas; streamline the delivery of existing programs; remove barriers to commercialization and technology transfer within program requirements; continue to advance foreign qualifications recognition; and put measures in place to maximize talent and knowledge inputs.1

The creation and findings of the expert panel is one example of the recognition that R&D and innovation can no longer be viewed as a natural by-product of doing business in Canada, but must be supported, cultivated and made a priority by government, universities, the business sector and professional associations in order to flourish. The Canadian Science Policy Conference held in Ottawa in November brought together many great minds to discuss various aspects of innovation as it relates to science policy.

However, it is obvious that talking alone is not going to fix our problems. Despite an increase in funding since the 1990s in university-based research, our innovation continues to lag very far behind other OECD countries. Although university research investments as a proportion of GDP are now higher in Canada than in all other G7 countries, including the United States. However, we rank 15th among all OECD countries in terms of R&D expenditures as a percentage of GDP.

Canada's challenge and where we fall short right now is a lack of focus on commercialization – bringing our research talents and innovations to market. Innovation carried all the way through the commercialization process to market is necessary if we are to achieve our nation's goals. All of this leads to competitiveness in the global market and means more prosperity for Canadians.

As per Engineers Canada's recommendations, streamlining existing programs will stimulate private sector investment in R&D by reducing the time and effort it takes to navigate the funding and incentive processes. Eliminating barriers to securing intellectual property to engineering-related research, design and development could facilitate the commercialization of Canada's R&D work. Federal policy needs mechanisms put in place to allow for better intellectual property rights.

We can spend more time talking about the "brain drain", the loss of Canadian talent to the United States and Europe, but if we continue to let things remain status quo in terms of innovation, our brightest minds are naturally going to choose to go where they will be supported in fulfilling their R&D work and are able to bring their products to market.

We must be globally competitive in order to continue to enjoy the prosperity we have now. Investing in R&D fosters a growing economy, creates strong employment opportunities, in turn increasing our standard of living as a nation. The success of our country is linked to our capacity to be innovative, and we must develop this in order to maintain our current quality of life in Canada.

In closing, I would like to wish everyone a happy and innovative 2012!

Chantal Guay, ing., P.Eng., M.Env.
Chief Executive Officer, Engineers Canada

# Cougar Racing

The Student Development Committee is proud to have sponsored University of Regina student group Cougar Racing this year.

Cougar Racing is the University of Regina's chapter of the Society of Automotive Engineers International (SAE), which is the premier society dedicated to advancing mobility engineering worldwide.

From June 8-11th, 2011, the Cougar Motorsports team represented the University of Regina and the province of Saskatchewan in Peoria, Illinois. The competition took place at the Caterpillar Industries testing ground (Edwards Test Facility) and attracted student teams and industry professionals from around the world. Overall the team placed 74th out of 115 teams and their best event was the rock-crawl where they scored 27th out of 115. For more information please see **www.cougar-racing.com.**


**Cougar Racing team presenting Patti Kindred, APEGS Education Director, with a plaque for appreciation and recognition of APEGS support.**

Procuring Consulting Engineering and Geoscience Services under the

# New West Partnership Trade Agreement

Consulting Engineers of Saskatchewan in conjunction with the Association of Consulting Engineering Companies – Canada has submitted the following comments in response to the article "New West Partnership Trade Agreement" from issue 135 of the *Professional Edge*.

The current procurement provisions of the New West Partnership Trade Agreement (NWPTA) have created a unique unintended consequence for both government clients and consulting engineers in the delivery of public infrastructure and other engineered assets. The industry believes the agreement's goal of being inclusive and transparent in its procurement practices is appropriate but the implementation of specific, prescriptive procurement practices to achieve that goal is not.

By requiring government clients to solicit and accept submissions from all firms within the trade agreement area, NWPTA makes procurement of professional engineering and geoscience services more time consuming and expensive for both the government client and the engineering firms. Most provinces in Canada do not impose the same burden on the procurement of professional services, nor does the Agreement on Internal Trade (AIT).

Increased time and resource demands by procurement officials in BC and Alberta are being reported and are being directly attributed to NWPTA - more specifically, to the sheer volume of proposals that must now be reviewed because of the interpreted procurement requirements of the agreement. Simply put, NWPTA leads to increased government procurement costs because it is now reviewing a significantly increased number of proposals. Pressures within government to reduce these costs may then lead to the dangerous practice of emphasizing simplistic selection criteria, such as costs, at the expense of more important qualitative criteria such as relevant experience, expertise and commitment to service. As a result, life-cycle costs may go up or quality, innovation and value may go down.

Wide-open solicitation of proposals will also force engineering consultants to spend more resources on writing proposals that will never be accepted. Other jurisdictions are reporting the cumulative cost of all the proposals received is often more than the value of the entire project. The additional costs incurred by consultants will result in higher overheads and higher costs to the public client, and ultimately the taxpayer. These extra costs do not increase innovation or quality. In fact, if more firms are forced to compete and deem their ability to succeed to be based strictly on commoditizing of engineering and geoscience services, future proposals may not be geared toward innovation and improved asset management strategies at all.

Additionally, as NWPTA is currently written, local content should not be considered as part of consultant selection criteria. While there is recognition that the spirit of this wording is to deter the client from favouring local service providers solely because they are local, it must be remembered there are valid arguments that knowledge of local conditions is a key consideration when selecting a consulting engineer or geoscientist. For example, understanding local soil conditions is critical when creating an engineering solution for certain projects. Someone unfamiliar with local terrain may not be the best qualified to engineer a solution.

A well-known best practice of procurement of engineering and related professional services, often referred to as Qualifications-Based Selection (QBS), is internationally recognized by public works experts in both the public and private sectors. In Canada, a Best Practice for the Selection of Professional Consultants was developed by the National Guide to Sustainable Municipal Infrastructure (InfraGuide). The principle of QBS acknowledges the unique public interest component of government-procured engineering services, and the significant life-cycle cost savings that can be realized by focusing on the appropriate qualifications of engineering firms.

The proposed solution put forward by industry in Saskatchewan is supported by the entire consulting engineering sector across Canada, and particularly by the Association of Consulting Engineering Companies in both BC and Alberta who are undertaking similar dialogues with their respective provincial governments as their jurisdictions are also governed by the NWPTA.

However, it can be argued that the NWPTA has become a barrier to the adoption of the Best Practice for Selection of Professional Consultants. Consequently innovation and life-cycle savings to taxpayers could be, or are being, sacrificed.

A solution that respects the principles of the NWPTA would be to adopt the approach AIT uses for procurement of engineering services. Professional services regulated under provincial statutes are recognized to be different than other services, and as a result procurement of these types of services is not included in AIT. The necessary adjustment to exclude procurement of engineering services in NWPTA is administrative in nature and will not require substantive renegotiation of the NWPTA. All other provisions of the NWPTA would continue to apply to the profession.

The proposed solution put forward by industry in Saskatchewan is supported by the entire consulting engineering sector across Canada, and particularly by the Association of Consulting Engineering Companies in both BC and Alberta who are undertaking similar dialogues with their respective provincial governments as their jurisdictions are also governed by the NWPTA. Engineering regulatory bodies in BC, Alberta and Saskatchewan also support the exclusion of procurement of engineering and geoscience services but their focus is more on potential risks to health and safety.

Industry believes that the AIT had it right – recognizing that engineering is a professional service regulated by provincial statute - and therefore should not be subject to prescriptive procurement provisions. Removing the procurement of engineering and geoscience services from the NWPTA would not preclude the goal of transparency. It would simply remove an unanticipated administrative burden, and allow generally accepted business practices to flourish. It is simply good business.

# Report on the
# Professional Practice Exam - 2011

SUBMITTED BY PATTI KINDRED, P.ENG., FEC, DIRECTOR OF EDUCATION AND COMPLIANCE

The Professional Practice Exam was written by 325 candidates in 2011, an increase of 73 examinees over 2010. The table below details exam results:

| EXAM DATE | MAY 28, 2011 | NOVEMBER 5, 2011 |
|---|---|---|
| Number candidates | 179 | 146 |
| Highest mark (%) | 92.5% | 92% |
| Average mark (%) | 74.4% | 75.9% |
| Number failures * | 0 | 1 |

** The grade required to pass the exam is 65%.*


## Registration, seminar and exam dates for Spring and Fall 2012:

### Spring 2012 Exam

- Thursday, March 15, 2012 - registration deadline for spring exam and seminar AND deadline for submission of post-bachelors work experience report (if none submitted previously)
- Friday, March 23, 2012 - Last day to cancel seminar and/or exam (re-application would be required)
- Friday and Saturday, mid-April 2012 (date to be determined) – Law and Ethics Seminar (Saskatoon)
- Saturday, May 26, 2012, 9 am - Professional Practice Examination (Regina and Saskatoon)

### Fall 2012 Exam

- Friday, August 31, 2012 - registration deadline for fall exam and seminar AND deadline for submission of post-bachelors work experience report (if none submitted previously). This is also the last day to cancel seminar and/or exam if you had applied for the fall 2012 exam previously (re-application would be required)
- Friday and Saturday, September 28-29, 2012 - Law and Ethics Seminar (Regina)
- Saturday, October 27, 2012, 9 am - Professional Practice Examination (Regina and Saskatoon)

The seminar runs from 10:00 am to 7:30 pm on Friday and 8:30 am to approximately 4:00 pm on Saturday. Complete exam information including the application and how to order textbooks can be found on the APEGS Web site, www.apegs.sk.ca, under Registration, Professional Practice Exam.

# News Beyond Our Borders

## Engineers Canada Pleased with Federal Long-term Infrastructure Plan

The federal government recently announced a formal engagement process to develop a new long-term plan for public infrastructure beyond the expiry of the Building Canada Plan in 2014. The announcement met with the enthusiastic approval of Engineers Canada.

"Engineers Canada has consistently called for a long-term, strategic approach to infrastructure investment in Canada. We are pleased with the government's announcement of next steps toward a plan for safe, reliable, well-managed and well-maintained infrastructure to support vibrant and prosperous communities," said Engineers Canada Chief Executive Officer, Chantal Guay, ing., P.Eng., M.Env.

"We are eager to participate in this initiative to help ensure that appropriate processes and sufficient funding are in place to provide sustainability for Canada's infrastructure."

Guay also stated that Engineers Canada will continue to work with governments, partners and other stakeholders to ensure that a future infrastructure funding program includes some kind of priority-setting mechanisms for new build and refurbishment, as well as appropriate asset management planning for long-term sustainability.

*Source: Engineers Canada*

## The Public Perception of Professional Engineers

A recent general public survey carried out by the Association of Professional Engineers and Geoscientists of British Columbia gives some insight into the extent of respect held by the public for Professional Engineers.

Ten professions were included in the survey and the questions posed were, "do you tend to have a great deal of respect, or a fair amount of respect for the following professions".

| PROFESSION | A GREAT DEAL OF RESPECT. | A FAIR AMOUNT OF RESPECT. |
|---|---|---|
| Doctors | 53% | 95% |
| Engineers | 30% | 90% |
| Architects | 25% | 88% |
| Teachers | 40% | 87% |
| Police Officers | 43% | 85% |
| Accountants | 14% | 80% |
| Geocientists | 20% | 75% |
| Journalists | 4% | 60% |
| Lawyers | 10% | 57% |
| Politicians | 2% | 23% |

*Source: Association of Professional Engineers of Nova Scotia*

## Why Women Leave Engineering

In November 2009, a national longitudinal study was launched in the US, funded by the National Science Foundation (NSF), to investigate women engineers' experiences in technical workplaces. To reach women who earned engineering undergraduate degrees, a partnership was formed with 30 universities to reach their female engineering alumnae through e-mail and postcards. Women from an additional 200 universities participated after hearing of the study in the media and through colleagues. As of January 2011, over 3,700 women have completed the survey and more than three quarters have agreed to be re-contacted in future waves of the study.

**KEY FINDINGS:**

**Of those women who left the profession:**

- Nearly half said they left because of working conditions, too much travel, lack of advancement or low salary.
- One-in-three women left because they did not like the workplace climate, their boss or the culture.

- One-in-four left to spend time with family.
- Those who left were not different from current engineers in their interests, confidence in their abilities, or the positive outcomes they expected from performing engineering related tasks.

**Those who didn't enter engineering after graduation:**

- A third said it was because of their perceptions of engineering as being inflexible or the engineering workplace culture as being non-supportive of women.
- Thirty percent said they did not pursue engineering after graduation because they were no longer interested in engineering or were interested in another field.
- Many said they are using the knowledge and skills gained in their education in a number of other fields.

Women's decisions to stay in engineering can be influenced by key supportive people in the organization, such as supervisors and coworkers. Current women engineers who worked in companies that valued and recognized their contributions and invested substantially in their training and professional development, expressed greatest levels of satisfaction with their jobs and careers.

*Source: Association of Professional Engineers of Nova Scotia*

## OIQ Gets Tough on Ethics

The construction industry, including engineering firms as well as the Ministry of Transportation, are under fire in Québec for ethics and competence breaches. Maud Cohen, ing., president of Ordre des ingénieurs du Québec (OIQ), recently sent a strongly-worded message on ethics reform to all registered engineers in Québec .

Our public image, which was once flawless, is taking a serious beating. We are being hit from every side like never before and have to react both as individuals and as a profession.

The Ordre des ingénieurs du Québec (OIQ) has developed an unprecedented ability to respond to these issues by doubling its staff at the Office of the Syndic. We are conducting a number of inquiries and taking action on several fronts, particularly in the areas of prevention and research.

Nearly two years ago the OIQ demanded a public inquiry into the construction industry. Although the government has chosen to resort to police investigations, we cannot sit back and relax until these investigations are concluded. This situation calls for immediate action to clean up government contracting and the OIQ is actively making efforts to that end.

We are also called upon as individuals to show that we care by our actions, conduct and professionalism. We should not resort or lend ourselves to dishonest or unethical practices, or tolerate such behaviours as we carry out our professional activities. If our client or employer rejects our opinion, we have to spell out the potential consequences for them in writing.

Furthermore, it is our duty to notify the syndic of the OIQ of any derogatory act committed by one of our peers. I would like to remind you that you can use the fully confidential hotline 1-877-ÉTHIQUE for that very purpose. But above all, we should always remember that we must act in every aspect of our work according to the four values of the profession, which are competence, responsibility, ethics, and social commitment.

*Source: Ordre des ingénieurs du Québec*

## Breaking Down Barriers

An historic initiative to streamline the engineering profession and make life easier for its practitioners is on track and supported nationally. The effort, known as the Canadian Framework for Licensure (CFL), has several goals, including the reduction or elimination of barriers to cross-Canada mobility. As well, the CFL is to establish standard requirements for licensure and consistent discipline practices across the country. And to enhance public confidence in the profession, the CFL wants to enshrine ongoing professional development as a requirement to remain a professional engineer in good standing. The CFL has started by researching and analyzing an initial 21 different areas where reform may be considered.

The Ontario Centre for Engineering and Public Policy (OCEPP), through an engagement with Engineers Canada funded by the federal government, prepared the research paper that laid the groundwork for the CFL effort. PEO CEO Kim Allen, P.Eng., FEC, earlier spearheaded the comprehensive review.

"Clearly, many obligations come with the privilege of self-regulation. Foremost among them remains serving and protecting the public," Allen wrote.

"Improvements to current licensing and membership frameworks are both possible and desirable. While some measure of differentiation among the provinces can be tolerated, the situation has gotten out of hand and the interests of individual engineers and the public have been harmed."

The CEOs of Canada's provincial and territorial regulatory organizations have been meeting regularly for the past two years to ensure the project maintains momentum.

*Source: Professional Engineers Ontario*

# News From The Field

www.cameco.com

## URANIUM & NUCLEAR

### Cameco announces breakthrough of second shaft at Cigar Lake

*Cameco media release* - Cameco announced it has reached the main mine workings with the second shaft at the Cigar Lake uranium mining project in northern Saskatchewan. Miners removed the final section of rock connecting shaft 2 with the mine workings 480 metres below surface on January 3, 2012. The second shaft will provide for increased ventilation of the underground workings as well as additional means of entering and exiting the mine.

"The breakthrough is a key milestone on our path to safe, clean and reliable production from this exceptional orebody," said president and CEO Tim Gitzel. "We expect to resume full mine development and construction activities in 2012 and remain on track to start ore mining by mid-2013."

In addition to the successful sinking of the second shaft, Cameco restored underground mine systems, infrastructure and development areas, secured regulatory approval and started construction of systems to increase discharge capacity for treated water, initiated orebody freezing from surface, developed and secured regulatory approval for a revised mine plan.

### Towns move forward in NWMO process

*La Ronge Northerner* - The Town of Creighton Council voted to (NWMO) Adaptive Phased Management project, the creation, development and construction of a Deep Geologic Repository (DGR) for the long-term management spent nuclear waste. English River First Nation also decided to move on to Step 3 of the process.

Step 3 will involve more detailed desktop studies using readily available information to determine whether used fuel can be managed safely.

Step 3 has two phases. The first phase of Step 3 includes more socioeconomic studies. The second phase will include more scientific and technological studies to explore the safety aspects as well as further study on community wellbeing.

NWMO spokesmen predicted the second phase could begin sometime in 2013 and could involve limited field studies including the possibility of some drilling and geologists in the field.
An NWMO spokesman also anticipated that, at the end of Step 3, the agency would be in a position to narrow down the number of suitable communities.

### U of S nuclear centre readies for research

*Saskatoon StarPhoenix* - The University of Saskatchewan's new nuclear research centre has its board of directors in place and will start accepting project proposals within the next few months.

The Canadian Centre for Nuclear Innovation, the $30-million initiative announced last spring, aims to develop research and training in the nuclear sciences field, an area the provincial government has targeted as part of its innovation agenda. The centre's name,mandate and board of directors were approved by U of S officials last year.

The centre is focused on creating research with "outcomes that benefit society," said interim director John Root, who is also the director of the National Research Council's Canadian Neutron Beam Centre.
The centre has targeted four areas of research: nuclear medicine, nuclear materials science, safety and engineering, and the environment and other social aspects of nuclear science. Root said examples of research that could happen include improving the delivery of radiation in medical procedures and improving nuclear safety technology.

The centre will help organize research projects with academics and funding sources. Researchers will submit project ideas and funding proposals to the centre that are then reviewed by outside experts.

The centre's focus is on local researchers, who can also partner with outside academics, governments or industry for funding or in-kind help.

The provincial government announced in March it would fund the centre with $30 million over seven years and also committed $17 million to build a cyclotron, a type of particle accelerator. The U of S last year also revealed it was lobbying the provincial and federal government for assistance to establish a new facility, the Canadian Neutron Source, which requires a small nuclear research reactor.

# ENERGY

## Worried about the wind

*Regina Leader-Post* - You would think it would be pretty easy to build a wind turbine somewhere in Saskatchewan without ticking off a whole bunch of people. Apparently not. The City of Saskatoon's plan to build a great, towering wind turbine near the landfill has stirred a storm of protest. So immense is this proposed wind turbine that it still will cast its shadow over the bucolic residential neighbourhood of Montgomery Place, three-quarters of a kilometre away.

At 120 metres in height, it will be the tallest structure in Saskatchewan – equivalent to a 36-storey building, but not as inviting. Residents of Montgomery Place are not only concerned about the eyesore but also the threat to their health from relentless noise and vibration, despite official assurances that the turbines will be inaudible.

To make matters worse, the location is not ideal from an energy performance standard. Rather, it ranks only as "marginal," scoring just two out of seven on a scale of site suitability.What makes this inappropriate site so appealing to the city is money from Ottawa. Saskatoon's relatively tiny electrical utility qualifies for a federal wind energy grant of more than $2 million, but only by building a turbine in the area it serves. Since the utility's service area is entirely within city limits, so must be the turbine.

# INFRASTRUCTURE

## SE trade corridor proposed

*Lifestyles* - A regional committee has taken the first steps towards making dramatic upgrades to Saskatchewan's international transportation infrastructure.

The process of establishing a Canada-U.S. trade corridor in southeast Saskatchewan has taken the first step forward.

In Weyburn on January 16, the Saskatchewan South East Enterprise Region (SSEER) convened a meeting to examine ways to boost international traffic between southeast Saskatchewan and North Dakota.

According to the keynote speaker, the southeast is the logical location in Saskatchewan for such a corridor. North Portal is home to Saskatchewan's busiest border crossing with the US. About 1,100 vehicles use the border crossing daily. The southeast also provides direct access to the Global Transportation Hub in Regina.

Proposals to enhance the corridor include twinning Highways 39 and 6 from North Portal to Regina.

Conference speakers noted that, presently, many goods coming into Saskatchewan are going in through other provinces first, because there isn't a highway corridor development suitable for major transportation of goods.

## U of S construction projects booming

*U of S media release* - Since the year 2000, there have been over 90 construction projects completed or in progress at the University of Saskatchewan, to a total budget of around a billion dollars.

The Vice-President of Facilities Management lists the health sciences project, InterVac, Place Riel, the expansion at Griffiths Stadium, and new student housing among this construction work.

Looking ahead to 2012, some of the new construction projects will include the cyclotron, the Gordon Oakes Red Bear Student Centre, a dairy research facility and childcare expansion.

## City's growth is 'new normal'

*Saskatoon StarPhoenix* – Saskatoon's urban growth continues steadily, thanks to what Mayor Don Atchison calls the four Fs: "Fuel, fertilizer, food and fantastic people."

Looking forward, Atchison talked of an extended economic expansion that looks as if it could go on for a couple of decades.What we are going through is not a blip, he suggested, but the new normal.

To deal with the expected era of economic growth, city

hall recently approved developing 10,000 new housing lots, which could mean anywhere from an additional 30,000-50,000 people moving to Saskatoon in the next several years. The plan is to balance this growth on the west and the east sides of the city.

The mayor is planning on redevelopment of Saskatoon's historical neighbourhoods. The key to revitalization of 20th Street, he said, is the city investing in facade improvement, establishing the Riversdale Business Improvement District, and giving residents a large say in the future of the neighbourhood through the Local Area Plan process.
In the coming decade, Atchinson believes the city could realistically grow to more than 300,000 people from 230,000. In real terms that is a lot of new homes, schools, roads and a busier transit service.

## Chinese build 30-storey prefab hotel in 15 days

*The Economist* - Teams working near Dongting Lake in Hunan province recently assembled a prefabricated 30-storey hotel in just 15 days. The time claims are somewhat specious. The work done on building the foundations and indeed on fabricating the various sections used to create the hotel were not calculated into the overall building time. Nonetheless, the project demonstrates the possibilities for modular construction, which has recently seen a renaissance in many parts of the world (including Saskatchewan).

The hotel is the creation of Broad Group, an airconditioning specialist which says that the building can withstand an earthquake of magnitude 9. According to construction innovation blog Next Big Future, the construction cost of the project was one-third of the current standard for Chinese skyscrapers.

## Mild winter could spell more potholes

*CBC News* - Milder than normal weather in Regina and Saskatoon so far this winter could mean more potholes in the coming months, according to city officials.

The cities have been experiencing a freeze-thaw cycle with temperatures often staying just above or below 00C in recent weeks – well above normal for this time of year.

City engineers say roads in Saskatchewan are built to withstand colder weather, so they are not able to handle the freeze-thaw cycle as well as cities with warmer climates.

## Rail line investment to facilitate crude oil

*Journal of Commerce* - Canadian Pacific is making a major investment to upgrade its United States main line south of Saskatchewan to increase the transportation of crude oil by rail from the Bakken Formation.

The company is investing more than $90 million to enhance capacity on its US main line, which runs through North Dakota and into Minnesota, to handle anticipated increased Bakken crude shipments. This includes upgraded track and sidings.

CP is now increasing volumes of crude oil movement by rail out of the Saskatchewan Bakken oil formation through a new CP transload facility operated by Bulk Plus Logistics in Estevan.

In the past three years, volumes of rail shipments of oil out of North Dakota have grown from about 500 carloads in 2009 to more than 13,000 carloads in 2011.
This is expected to grow to 70,000 annual carloads in the future.

The Bakken Formation, encompassing sections of Saskatchewan and North Dakota, is a key area of focus for Canadian Pacific and part of the railway's growing energy portfolio.

## Construction booming with mild weather

*CBC News* -Warm weather is helping the province's construction industry.

Scaffolds that otherwise would be too slippery have been kept in operation. Likewise, the warmer weather is easier on machinery.

In some cases, the warmth has allowed crews to move jobs along faster. Other projects have been started that would otherwise have been idle.

However, while the warmth is welcome, the industry is having a hard time finding warm bodies for all the work.

"We need the people to come in and do the work," an official with the Saskatchewan Construction Association, said. "We might see more people travel to Saskatchewan in this nice weather to work here. I hope so."

# UNIVERSITIES & RESEARCH

**Ilene Busch-Vishniac, PE** *Courtesy of University of Saskatchewan*

## New president reflects a new U of S

*Maclean's* - Under President Peter MacKinnon's 13-year reign, the University of Saskatchewan was transformed from a staid Prairie school into an institution that attracts not only plenty of research dollars for things like the Canadian Centre for Nuclear Innovation and the Canadian Light Source synchrotron, but also a diverse faculty and student population.

That makes it unsurprising that the U of S's new president is a Jewish-American female engineer who has helped lead top research institutions.

Ilene Busch-Vishniac, PE originally from Philadelphia, Penn. has worked for Massachusetts Institute of Technology, University of Texas-Austin, Johns Hopkins University and McMaster University, where she currently serves as provost and vice-president academic.

Busch-Vishniac is an accomplished acoustics researcher and engineering education advocate. In the past, she's advocated that women don't need to give up motherhood to have successful careers in academia, encouraged more minorities and women to pursue engineering and worked with the Six Nations in Ontario to increase access to education for Aboriginal Canadians.

In an interview with the Saskatoon StarPhoenix, she laid out what she thinks a university ought to be.

"Universities are precisely the places where controversial issues ought to be discussed and debated… A university is a safe place to have uncomfortable conversations. For example, the world thought we had produced safe nuclear reactors, then Fukushima happened.Where better than a university to examine what went wrong, what we need to do differently and what makes sense for the future?"

In a press release from the university, Busch-Vishniac said:

"I look forward to continuing the momentum created by the extraordinary work of President MacKinnon as we foster innovations in teaching and learning, grow research programs that will drive the economy of the province in the future, distinguish ourselves through innovative approaches to the issues of the Aboriginal communities, and define the role we wish to play locally, provincially, nationally and internationally."

# ENVIRONMENT

## City curious about effects of climate change

*Saskatoon StarPhoenix* - The city of Saskatoon wants to work with the University of Saskatchewan on a research project that will study how the city's storm water and sewer systems are affected by climate change trends.

The two-year project could start this month and will study the city's "intensity-duration-frequency curves" - the main tool used in storm water management system designs - in the wake of unprecedented rainfall during the past decade. Saskatoon has had four of its wettest years on record since 2005, according to the city.

The study will complement the city's greenhouse gas emissions reduction plan. Other cities have developed climate change plans, such as Toronto's Ahead of the Storm: Preparing Toronto for Climate Change report.

The U of S study from the civil and geological engineering department will analyze historic rainfalls and global climate data, review the city's infrastructure in light of changing weather patterns and ultimately recommend changes to future storm water management system designs and operations.

## Ottawa backtracks on coal emissions

*Globe and Mail* - The federal government is offering the provinces a way to avoid tough new regulations that would eventually force power companies to shut down the country's fleet of coal-fired power plants.
Federal representatives have privately indicated they are willing to provide flexibility in how new power plant emissions rules are implemented, provincial and industry sources have said. The federal government is expected to release the final version of the long-promised regulations in the coming months.

The change in stance by the federal government provides relief for some of the country's biggest utilities. Alberta based power generators such as TransAlta Corp., Capital Power Corp. and Atco Ltd. - as well as Nova Scotia's Emera Inc. and Saskatchewan's SaskPower have warned that a rigid approach to Ottawa's plant-by-plant rules would

increase costs, drive up electricity prices for consumers and strand valuable assets by imposing arbitrary deadlines for power plant closings.

The federal government has long touted its proposed coal regulations as evidence it is serious about cutting the country's greenhouse gas emissions, even as it faced international condemnation for withdrawing from the Kyoto Protocol which set specific reduction targets for Canada. Coal-fired generation accounts for roughly 16 per cent of Canada's electricity.

Now the federal government is willing to cede regulation of power sector emissions to the provinces as long as they have rules in place to achieve equivalent reductions. The new approach would allow provinces to set overall emissions targets rather than adhere to strict targets for each individual power facility as set out by the government's original approach.

Alberta, Saskatchewan and Nova Scotia – which rely most heavily on coal for electricity – have received assurances that Ottawa will not saddle them with cumbersome regulations in a sector that is primarily under their jurisdiction, provincial and industry sources said.

First promised nearly two years ago, the regulations would essentially prohibit the construction of new coal-based plants after 2015 unless they include carbon capture and storage (CCS) equipment to dramatically reduce emissions. SaskPower, TransAlta and Capital Power are considering massive investments in CCS projects.

Ottawa's regulations would also require companies to close plants after 45 years of operation – considered the typical commercial lifespan – unless they are equipped with CCS. The government says two-thirds of Canada's coal-fired plants will reach the end of their commercial life by 2025, and more than 80 per cent will do so by 2030. But the government's regulatory impact statement issued last August noted that "some provinces expressed a desire for equivalency agreements" under which "the federal regulations would stand down and the provincial regime would apply."

Officials from Nova Scotia and Saskatchewan said their governments will certainly be pursuing equivalency agreements so they can pursue their own regulatory approaches.

Saskatchewan is currently drafting climate rules for industry, and is counting on CCS technology to cut emissions from coal-fired power plants. But the province worries the federal regulations could snuff out CCS projects because they don't allow sufficient time to prove the technology or the averaging of emission reductions across SaskPower's fleet, said Kim Graybiel, director of the province's climate change branch.

*nature.pagannewswirecollective.com*

## Discovery may aid oil sands cleanup

*Saskatoon StarPhoenix* - A novel filtration material developed at the University of Saskatchewan as part of a Ph.D. thesis may offer a green solution to contaminated oil sands process water.

Mohamed Hamid Mohamed's Ph.D. thesis research placed among the top 12 national finalists honoured by the Natural Sciences and Engineering Research Council of Canada (NSERC) at the 2011 Innovation Challenge Awards in Ottawa.

The awards honour graduate students who have demonstrated an entrepreneurial spirit by identifying ways in which their research thesis results can be developed into products and processes to benefit Canadians.

Mohamed is investigating ways to remove corrosive acids from oil sands process water. His project, the only finalist

project not already at the commercialization stage, was deemed by the judges to show great potential.
Crude oil contains acids which lead to corrosion problems in oil refineries, so the oil must be washed and the waste water cannot be reused.

Working at Environment Canada's Hydrology Research Centre in collaboration with the U of S chemistry department, Mohamed is using materials science to help decontaminate oil sands process water.

Once the federal government determines standards for cleaning and returning the water to the environment, oil producers will be looking for an efficient, cost-effective and environmentally friendly method of purifying the water used to wash crude oil, he says.

He was inspired to pursue this research by its potential to help people in his home country, Kenya, where water purification is a serious concern. He believes he will be able to bring the Saskatchewan research back to Kenya where it will provide other water purification solutions.

# MINING

## Agrium Inc. expanding Vanscoy potash mine

*CBC News* - Fertilizer-maker Agrium Inc. is expanding its Vanscoy potash mine as it sees stronger profits and production ahead.

The Calgary-based company said Wednesday the one-million-tonne expansion at Vanscoy will raise capacity by 50 per cent at a cost of about $1.5 billion. Construction is scheduled to begin in early 2012 and wrap up two years later.

Currently Vanscoy, Agrium's only potash plant, accounts for three per cent of world potash capacity, making the company the 10th largest producer.

Following the expansion (assuming the rest of the announced brownfield expansions are completed), Agrium's world market share should increase to 4.5 per cent,making it the eighth largest potash producer in the world.

Demand for potash, a major fertilizer, is growing in Asia and other parts of the world as farmers seek to produce higher yields from their fields to meet rising demand for grain from consumers as well as the biofuel and animal feed industries.

The engineering and construction at Vanscoy will be undertaken by SNC-Lavalin Inc., the Montreal-based engineering and construction giant, and PCL Industrial Management Inc.

# OIL & GAS

## Oil field had a busy year

*Lifestyles* - The past year was filled with trials, tribulations, triumphs and success stories for the local oil patch. Floods caused challenges for local businesses, but the southeast remained a hot commodity in the oil sector. The new Saskatchewan Energy Training Institute is nearing completion.

In land sales, Southeast Saskatchewan continued to drive the provincial oil sector this year. Total revenues for the province amounted to $248.8 million, making 2011 the fourth-best year ever for land sales. The southeast region, fuelled by the strength of the Bakken oil play, generated $107.5 million this year. The southeast was often the leader for the highest single price bid and the highest bid per acre.

The floods in southeast Saskatchewan this year had an adverse impact on the oil patch. The near-record rainfall flooded roads and limited access to sites. The wet conditions also delayed the conclusion of road bans. Only a handful of the rigs in the southeast were operating in June. Many projects weren't being completed, and employees couldn't work. Drier conditions in the summer and in the fall allowed some of the fields to dry out and improve site accessibility, but other fields are still under water.

Construction of the new Saskatchewan Energy Training Institute in Estevan is nearly complete. The institution, which will be the first of its kind in Canada, will provide specialized training and skill development to meet the needs of a wide range of sectors including oil and gas, trades, mining, manufacturing and alternative energies. It's expected that the first classes in the new building will be offered in early 2012.

# Calendar of Events

*court-reporting-blog.com*

**Remediation & Prevention Conference**
February 15, 2012
Winnipeg, MB
www.meia.mb.ca/eventslist.php

**USEPA SWMM & PCSWMM Stormwater Modeling 1 Day Advanced Workshop**
February 21, 2012
Toronto, ON
www.chi-training.com

**Emissions Conference 2012**
February 21-22, 2012
Winnipeg, MB
www.umanitoba.ca/faculties/management/ti/emissions_conference_2012.html

**International Conference on Stormwater and Urban Water Systems Modeling**
February 22-23, 2012
Toronto, ON
www.chi-training.com

**GLOBE 2012 Sustainability Conference**
March 14-16, 2012
Vancouver, BC
www.globeseries.com

**Canadian Coalition of Women in Engineering, Science Trades and Technology National Conference**
May 3-5, 2012
Halifax, NS
www.ccwestt2012.ca

**APEGS Annual Meeting**
May 3-5, 2012
Saskatoon, SK
www.apegs.sk.ca

**CIM Conference and Exhibition 2012**
May 3-9, 2012
Edmonton, AB
www.cim.org/edmonton2012/

**GEOConvention 2012: Vision**
May 14-18, 2012
Calgary, AB
www.geoconvention.com

**The Canadian Society for Civil Engineering 2012 Annual Conference**
June 6-9, 2012
Edmonton, AB
www.csce2012.ca

**Canadian Engineering Education Association Third Annual Conference**
June 17-20, 2012
Winnipeg, MB
www.ceea.ca/EN/index.php

**15th International Specialty Conference on Cold Regions Engineering**
August 19-27, 2012
Quebec City, QC
www.csce.ca/2012/iccre/

**Water, Treat it Right**
Western Canada Section AWWA Annual Meeting and Conference
September 18–21, 2012
Winnipeg, MB
www.wcsawwa.net

**Canadian Dam Association**
September 22-27, 2012
Saskatoon, SK
www.cda.ca/cda_new_en/conferences/conferences.html

**Forming Our Future: American Concrete Institute**
October 21-25, 2012
Toronto, ON
www.concrete.org/EVENTS/ev_upcoming_conventions.htm

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# Why critical illness insurance?

## How it can ease the financial burden for your family

Despite medical advances, critical illness is still common. In fact, the chances of you — or a close family member — being diagnosed with a critical illness are very real.

- Every hour of every day, about 20 people will be diagnosed with some type of cancer across Canada[1]
- 40% of Canadian women and 45% of men will develop cancer during their lifetimes[1]
- There are an estimated 70,000 heart attacks each year in Canada (that's one heart attack every 7 minutes)[2]
- There are over 50,000 strokes in Canada each year (that's one stroke every 10 minutes)[2]

Although more people survive critical illness, they may live with the economic impact for the rest of their lives.

### By the numbers:

**63** The percentage of Canadians who admit they have no plan ready in case they are diagnosed with a critical illness[3]

**75** The percentage of Canadians who are concerned about having enough money if they became critically ill[4]

**18** The number of conditions covered by the Engineers Canada-sponsored Critical Illness Plan

### Can you afford the costs of being critically ill?

Being diagnosed with a critical illness doesn't only spell emotional and physical distress. It can have an enormous cost for people living with the disease and for their families.

> "The financial burden can be as stressful as the disease. The financial impact can last longer than the disease itself."

Unfortunately, public health services in Canada do not pay for all costs associated with critical illness. Many costs of treatment must be paid for by the patient, including some drugs, medical supplies and prosthetics. The average cost of newer cancer drugs alone is $65,000 per course of treatment.[1]

Persons living with critical illness usually have to take time off work for treatment and recovery. Loss of work or return to work at a lower salary can have long-term effects. Pension benefits may be lost or reduced. Debts may take years to repay. The standard of living for the patient and their family may be permanently reduced.

If you are self-employed, your situation may be even more uncertain than for those with jobs and benefits — you may have no income during treatment and recovery because you are not eligible for Employment Insurance benefits.

### How critical illness insurance can help

Unlike monthly disability benefits that cover your regular household expenses, critical illness insurance pays you a lump sum up front for more flexibility in meeting many other expenses. These could include costs for drugs, travel to and from treatment, meals, housekeeping and to allow your spouse to take time off work to care for you.

The Engineers Canada-sponsored Critical Illness Plan is available for you and your spouse in coverage amounts ranging from $25,000 to $1 million. The lump-sum benefit is paid directly to the insured upon diagnosis of life-threatening cancer, heart attack, stroke or up to 15 other common covered conditions.

[1] Canadian Cancer Society's Steering Committee: Canadian Cancer Statistics 2010. Toronto: Canadian Cancer Society, 2010.
[2] Heart & Stroke Foundation Statistics.
[3] Redfern Research, March 2009.
[4] LIMRA, Tracking Opinions of the Public in Canada (Financial Products), 2009.

Save 10% on your premiums on coverage of $125,000 or more with the Engineers Canada-sponsored Critical Illness Plan.

To learn more and to apply:

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