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Association of Professional Engineers & Geoscientists of Saskatchewan

THE PROFESSIONAL EDGE

ISSUE 184 • JANUARY/FEBRUARY 2020

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JANUARY/FEBRUARY 2020

PROFILES IN *Achievement*

President's Message

Terry Fonstad, Ph.D., P.Eng., P.Ag., FEC

This month, *The Professional Edge* profiles achievements of engineers and geoscientists in Saskatchewan. As the regulator of the professions in Saskatchewan, APEGS has a duty to ensure members are competent and proficient, are registered, remain competent and proficient and that we foster how each of us practises the professions in a manner that is in the public interest.

For me, profiling the achievements of our colleagues and sharing with each other as we learn and develop new knowledge is a way that we can foster the practice of the professions. This sharing of knowledge and mentoring of each other also ensures we are holding paramount public safety and protection of the environment, striving to advance the body of knowledge within which each of us practises and providing opportunities for professional development for our subordinates.

Personally, as each of us fosters the practice of the professions we are also meeting our own ethical obligation to keep ourselves informed in order to maintain our own competence.

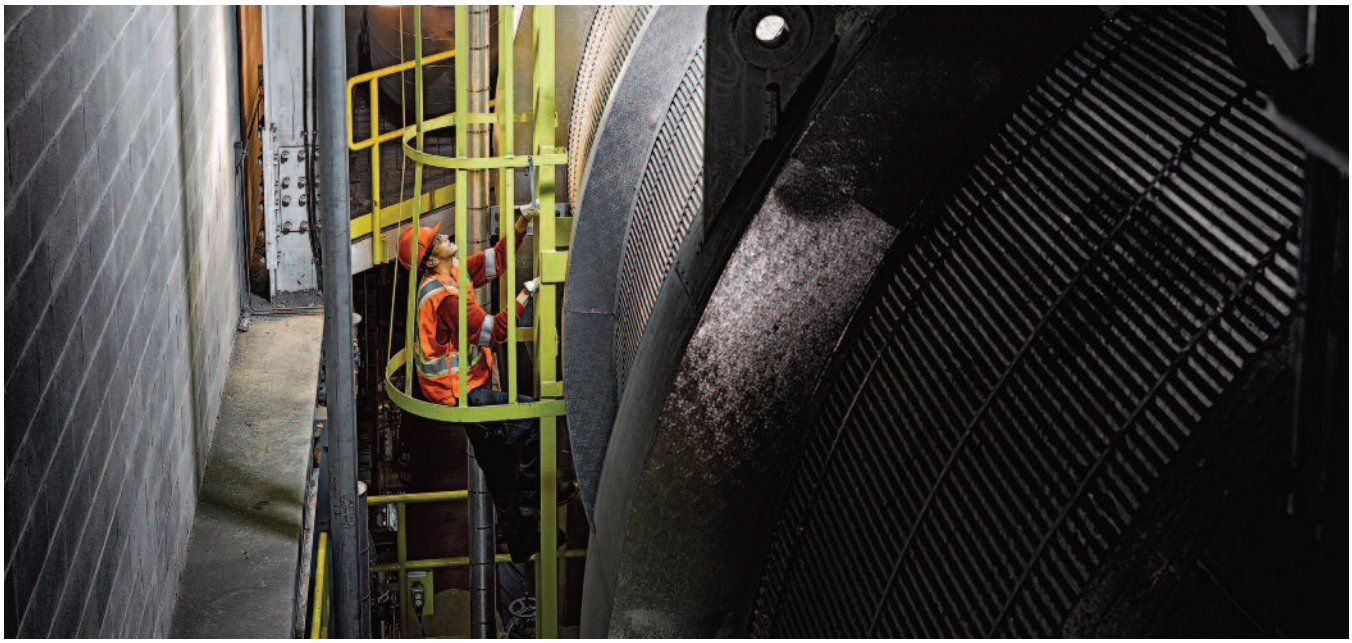
Engineering and geoscience are mentored professions, ever improving and advancing because we each commit to advancing knowledge and sharing that new knowledge with our colleagues. Once we know of an improvement or new knowledge, we are obligated to the public to use the best and most up to date technology and practices.

The professions have been given the privilege of self-government and the obligation to safeguard human life and welfare and the environment. Public trust is essential to retaining this privilege of administration of *The Engineering and Geoscience Professions Act*.

The general public typically knows little of what we do, but explicitly expects us to ensure their safety as well as that of the environment. Additionally, because of our specialized training and experience, we are ethically obligated to be aware of and ensure that others are made aware of societal and environmental consequences of actions or projects and endeavour to interpret professional issues to the public in an objective and truthful manner.

We should also be very proud of our service to society and the accomplishments of our colleagues.

I would like to congratulate those involved in the projects and activities highlighted in this issue of *The Professional Edge* and also all of those not highlighted but that do amazing things every day to advance and protect our society.



SaskPower's Carbon Capture and Storage (CCS) facility near Estevan

SaskPower Carbon Capture

THE COMPANY:

SaskPower is the principal supplier of electricity in Saskatchewan, serving more than 538,000 customers and managing $11.8 billion in assets. The Crown corporation has a generating capacity of 3,542 megawatts (MW) from 17 generating facilities, including three coal-fired power stations, five natural gas stations, seven hydroelectric stations and two wind power facilities.

THE ACHIEVEMENTS:

In staying true to its vision of a shared cleaner energy future, SaskPower celebrated numerous achievements in 2019 that will impact the environment.

SaskPower's Carbon Capture and Storage (CCS) facility near Estevan, as of Nov. 4, had captured more than three million tonnes of carbon dioxide (CO_2) - equivalent to taking 750,000 vehicles off the road.

SaskPower has committed to reducing its greenhouse gas emissions by at least 40 per cent below 2005 levels by 2030. It will achieve this target through increased use of renewable energy, as well as moving to lower-carbon forms of fuel such as natural gas and continuing to utilize CCS.

In the fall of 2014, Boundary Dam Power Station became the first power station in the world to successfully use CCS technology.

The Carbon Capture and Storage Facility is capable of reducing greenhouse gas emissions by up to one million tonnes of carbon dioxide each year - the equivalent to taking 250,000 cars off the road.

It also captures 90 per cent of carbon dioxide, 100 per cent of sulphur dioxide and 50 per cent of the nitrogen oxides.

In addition, the project allowed for manufacturing of other products from the byproducts captured. Sulphur dioxide is converted to sulphuric acid and sold for industrial use. Fly ash, a byproduct of coal combustion, is sold for use in ready-mix concrete, pre-cast structures and concrete products.

THE TEAM:

SaskPower's renewable energy initiatives rely on the contributions of teams drawn from more than 400 professional engineers employed at the Crown corporation.

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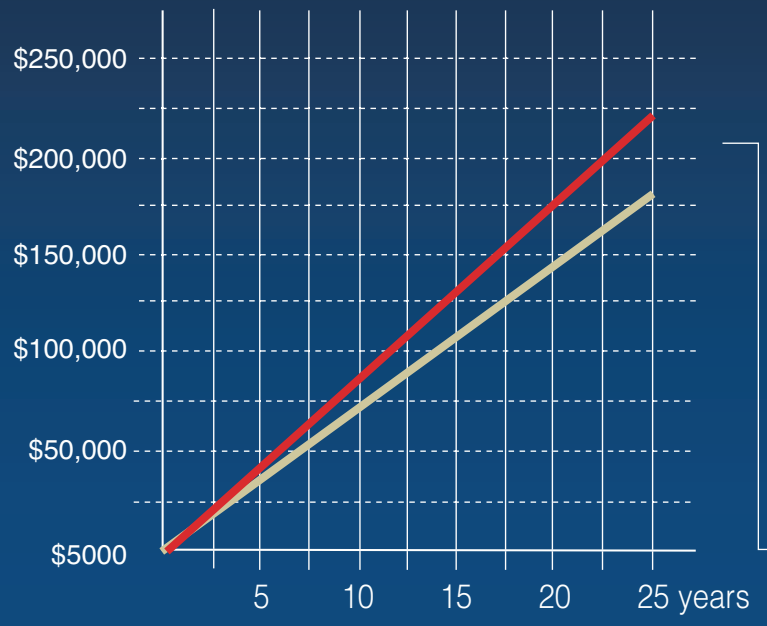

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The bandmates are Brenden Claypool, Eric Kristjansson, P.Eng., Justin Mrazek P.Eng. and Chris Sawcyn, M.Sc., P.Eng.

Engineers Rock

THE COMPANY:

Based in Regina, Coherency is a four-piece rock band that blends elements of rock, grunge and punk into a driving, cohesive and energetic sound. As a true independent band, Coherency shares a common belief in the punk rock ethos of DIY.

THE ACHIEVEMENT:

Usually it's the geoscientists who specialize in rock formations.

But in this case, it's three Regina-based engineers who share a common love for 1990s alternative grunge music who came together to form a four-piece band called Coherency.

The bandmates are Brenden Claypool (vocals, guitar), Eric Kristjansson, P.Eng (guitar), Justin Mrazek P.Eng (bass, backing vocals) and Chris Sawcyn, M.Sc., P.Eng (drums, backing vocals).

The band originally took shape in the early 2000s and played cover songs at house parties.

After a seven-year hiatus, Coherency released an album called Cognitive Dissonance in 2018.

In January 2019, the band debuted a video on YouTube from the album. The video from the song Bleed is hockey-themed and features a highlight montage of the Western Hockey League's Regina Pats.

Cognitive Dissonance is the follow-up album to Coherency's debut EP Shades of Aura. The band is expected to release an acoustic album soon, as well as a third studio album sometime this year.

Their respective engineering backgrounds play a distinct role in the music-making process.

"It's no secret that our lyrics and songs have been impacted by math and science. We can't hide who we are," Eric said. "Having technical educations has really helped us in the recording and studio design process because of our ability to research and develop solutions as we go.

He added the band uses spreadsheets to track the album progress on a track by track and song by song basis for each performer's parts.

The recording of the band's first album (in 2007) was challenging. The venue was Chris's basement, hardly the ideal setup for several reasons. So, they improvised and made adjustments on the fly to get the most out of the sound quality.

"It was more of a live recording," Chris recalled. "We had to separate the guitar cabinets in different rooms and set

Chris

Eric

up mattresses in the rooms to soundproof them so we didn't have a bleed from mic to mic between takes."

"The technology jump from the first album where you're capturing sound through a microphone that's coming out of your amp … to record it all and then go and try to make it all sound good when you're getting reverberations from different rooms is totally different from the sound you get today when everything is run through a computer and you're able to change it note for note, sound for sound," Eric added.

They agreed that the first album had a true garage band sound.

The new album, *Cognitive Dissonance,* was recorded in a digital studio at Brenden's house.

"We could lay tracks separate from one another and eliminate the bleed issue," Chris said.

Justin has a mixing studio at his house, where the bandmates can listen to the different takes and adjust the sound.

"Cognitive Dissonance is more radio-play worthy," Chris said. "When we hear the album now, it doesn't sound out of place like our first album probably did."

Hockey also has been a big influence on the band. Justin is a former goaltending prospect of the Washington Capitals, while Eric and Chris have been friends since they first met playing atom hockey together in Regina.

The guys convene at least once a week to play hockey. And when they're not playing, they can still be found at the local rinks watching their kids' games.

Chris has three kids, Eric has two kids, Brendan has a son and Justin has two kids. They're all involved in sports and music, which makes it a challenge for the band to find time to rehearse.

But you'll hear no complaining. They all enjoy watching their kids play hockey and learn the instruments their dads play. Both hockey and music keep the bandmates close.

"Living in the trenches with Chris at school and doing all of the work there helps form a deeper bond as friends," Eric said. "And once you're out of school, your friend group tends to be people who share that similar mindset."

THE BAND:

Eric has a background in civil engineering. He is the director, chief estimator at PCL in Regina. Chris comes from a mechanical engineering background. He is the platform lead – rail/machines in the machine conversion group at Brandt Engineered Products Ltd. Justin, also with a background in mechanical engineering, is a supervisor, mechanical maintenance with Enbridge Pipelines Inc. Brendan is an IT infrastructure manager at SaskTel.

Recovering Rare Earth Elements from Saskatchewan's Uranium Deposits

THE INSTITUTION

The Saskatchewan Research Council (SRC) is Canada's second largest Research and Technology Organization. With more than 340 employees, $75 million in annual revenue and 72 years of RD&D experience. SRC provides services and products to its 1,400 clients in 23 countries around the world.

THE ACHIEVEMENT

It is well-known that Saskatchewan has the world's richest uranium deposits, but you might be surprised to learn that they also contain Rare Earth Elements (REEs).

More than 80 per cent of the REEs found in uranium deposits are heavy REEs (HREEs). These elements, which include gadolinium, terbium, dysprosium, erbium and ytterbium, have superior energy and magnetic properties compared to light REEs. The current demand for HREEs is very high because they are used in everyday electronics.

HREEs are also important for nuclear and green technologies, as well as the defence and aerospace industries. However, the extraction of REEs from uranium deposits in Saskatchewan had not been considered a viable option before as there had not been a cost-effective recovery technology developed for it.

Over the last few years, the Saskatchewan Research Council (SRC) has developed both acidic and alkaline processes to treat different uranium ores and rare earth ores from different areas of the world, including right here in Saskatchewan.

Lab tests have proven that 90 per cent of the HREEs in uranium waste can be recovered. The HREEs recovered from uranium waste can be further separated using SRC's solvent extraction (REE SX) pilot plant into individual, high purity rare earth elements.

SRC's pilot plant has 150 stages of mixers and settlers that can be configured to different separation processes for either group separation or individual REE separation. Products with +99.9 per cent purity have been produced from the pilot plant and can be further upgraded to higher purity by increasing the number of stages.

SRC selected the solvent extraction (SX) method for REE separation and developed a processing plant in 2017. SRC adapted that technology to address the specific REE separation challenges in processing secondary rare earth resources such as uranium raffinate. However, the technology is also applicable to the separation of primary rare earth resources such as monazite and bastnasite.

Recovering REEs from uranium mines in Saskatchewan truly has the potential to create significant economic benefits for both mining companies and the people of Saskatchewan.

THE TEAM

This work is being led by a team of engineers, scientists and technologists within SRC's Mineral Processing group including Jack Zhang, P.Eng., Baodong Zhao, P.Eng., Bryan Schreiner, P.Eng., P.Geo., FEC, FGC, Dennis Wang, P.Eng. and Tim Oleniuk, P.Eng.

SRC's Gamma Ray Tomography Unit

THE INSTITUTION

At SRC's Pipe Flow Technology Centre™, diving into the physics of fluid mechanics is second nature.

THE ACHIEVEMENT

Understanding what goes on inside a slurry pipeline — an elaborate system involving fluid dynamics, hydraulic pressure and various solids, liquids and gases in suspension — is a complex matter.

Research in a laboratory setting helps develop pipe flow models that are used to design and operate pipelines reliably, safely and efficiently. A key challenge of this type of research, however, is obtaining information about the contents moving through the pipe without disturbing the flow.

Recently, SRC's Pipe Flow Technology Centre™ acquired a state-of-the-art tool that stands to solve this challenge: A Gamma Ray Tomography (GRT) unit. SRC's GRT unit uses multiple gamma-ray sources and sensors to produce real-time images of the density of the pipeline contents at data acquisition speeds of up to 100 frames per second.

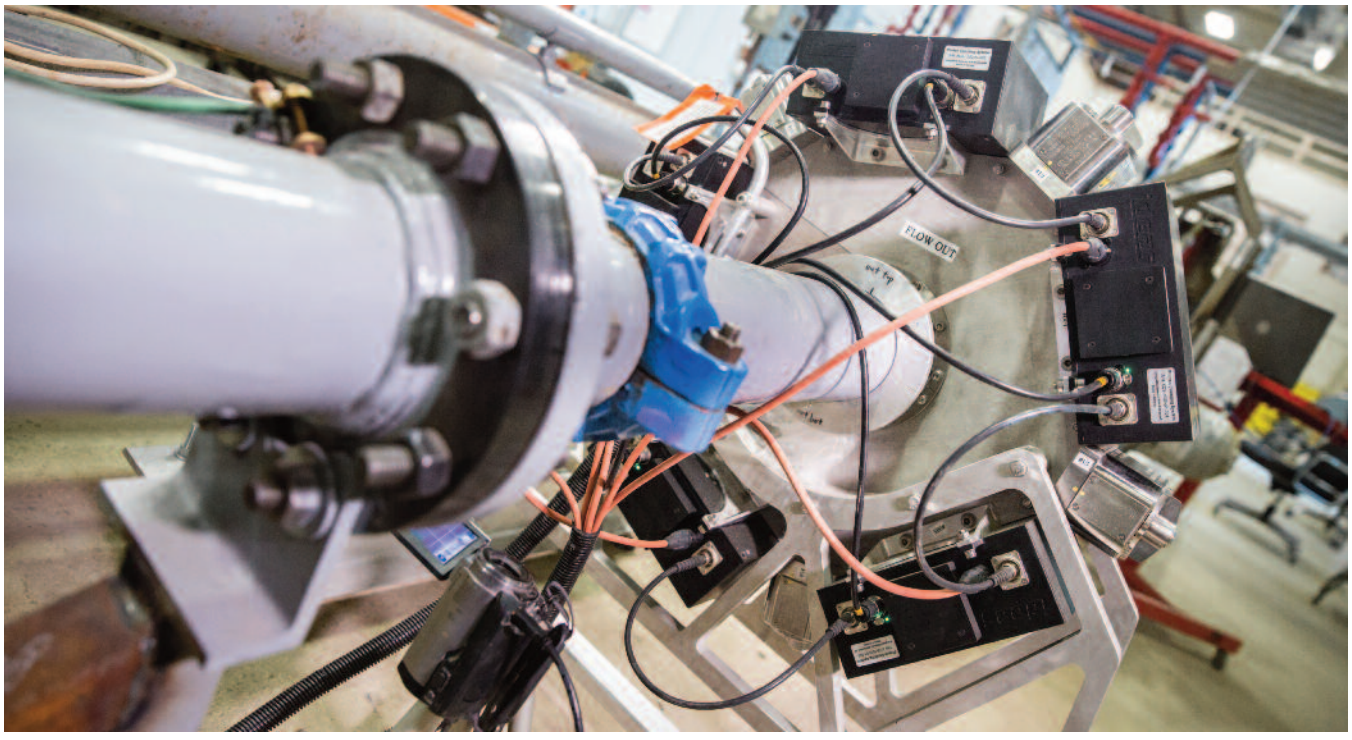
The new unit is used to reconstruct a high-resolution image of the solids' concentration distribution across the pipe cross-section. The high-frame rate allows engineers and scientists to visualize the concentrations of materials flowing through the pipe in real-time.

Knowing how materials are dispersed within the pipeline is critical to properly modelling slurries. With the clarity the GRT unit provides, SRC's experts get a better picture of how particles are positioned in the slurry, flowing through the pipe both laterally and vertically.

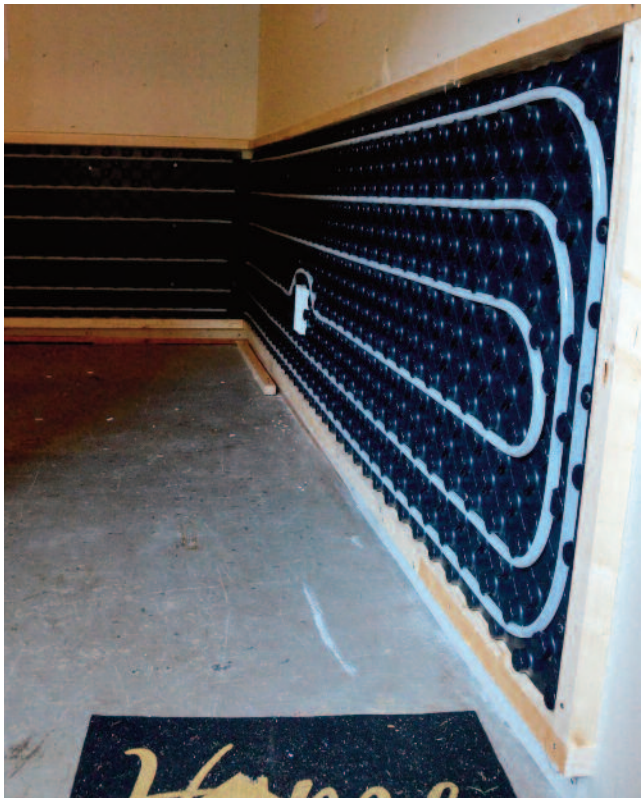
The information generated helps build more accurate predictive models, which helps engineers to size pipelines and determine the energy requirements to pump materials safely and efficiently.

THE TEAM

The GRT work is currently being completed by Dr. Reza Hashemi, P. Eng. and Dr. Ryan Spelay, P. Eng. Also involved are Lesley McGilp, P. Eng., Dr. Melissa McKibben, P. Eng., Ruijun Sun, P. Eng. and scientists and technologists from SRC's Pipe Flow Technology Centre team.



Installing a radiant heating system saved $900 in electricity costs.



The radiant heating system did not increase natural gas consumption.

Star Blanket Passive Heating Project

THOSE INVOLVED:

Star Blanket Cree Nation, APEGS, the University of Regina Faculty of Engineering and Applied Science, MacPherson Engineering, ASHRAE, Anaquod Plumbing and Heating, Uponor, Fries Tallman and Saskatchewan's United Nations Regional Centre of Expertise on Education for Sustainable Development.

THE ACHIEVEMENT:

More than 60 per cent of the homes on Star Blanket First Nation have air quality issues due to black mold. The basements in these homes are uncomfortably cool because of inadequate HVAC systems.

This sparked a collaboration in 2017 with Wendell Star Blanket, a member of Star Blanket Cree Nation, and MacPherson Engineering and Uponor, which holds several patents for a hybrid passive heating technology.

The following year, a hybrid passive heating system installed in Wendell's basement by MacPherson Engineering and Uponor resulted in improved air quality, increased comfort and a more cost-effective solution to heat the space.

The next step was to conduct a study to measure the capacity of passive heating as a sustainable and economically viable solution to improve health, safety and comfort.

In autumn of 2018, four senior undergraduate students from the University of Regina's Faculty of Engineering and Applied Science collected data, which included temperature comparisons, humidity levels, electricity usage and natural gas usage for two homes in the Star Blanket community - one with the installed passive heating system and one without.

It was found that the basement with the radiant heating system was slightly warmer than the basement without. Also, the basement with radiant heating had surface humidity as high as 41 per cent, while the home without was as high as 55 per cent. This showed that the basement with radiant heating is less likely to develop mold.

Through analysis of natural gas usage, it was determined the installation of the radiant heating system did not increase natural gas consumption. It was also shown that by removing the space heaters and installing the radiant heating system, approximately $890 was saved per year in electricity costs.

In 2019, a second hybrid passive heating system was successfully installed by the University of Regina student-team, MacPherson Engineering, Uponor and Anaquod Plumbing and Heating.

After completing a review of the first installation, the project team was able to reduce capital costs by approximately 30 per cent. Design of the system was completed by the University of Regina student-team, with mechanical engineers at MacPherson Engineering providing guidance.

In an effort to use this project as a development opportunity for those considering the trades or the applied sciences, representatives from MacPherson Engineering and the University of Regina hosted an engineering workshop at Payepot School. Students from the school were invited to participate in the installation of the systems.

Mechanical engineers at MacPherson Engineering served as industry advisors and assisted the U of R undergraduate student team over the duration of the project. MacPherson Engineering also partnered with the U of R to instruct a senior-level course focused on the design of heating, ventilating and air-conditioning systems.

Monetary costs associated with this project have been generously sponsored by APEGS, MacPherson Engineering, Uponor and Fries Tallman.

Star Blanket Cree Nation is in the Fort Qu'Appelle area and is one of the bands covered by Treaty 4. There are 709 members of the Nation, with 354 currently living on-reserve in 82 homes.

THE TEAMS:

Mechanical engineers at MacPherson Engineering served as industry advisors and assisted the University of Regina undergraduate student team over the duration of the project. MacPherson Engineering also partnered with the University to instruct a senior-level course focused on the design of heating, ventilating and air-conditioning systems. This course further complemented the technical capacity of the student team.

Monetary costs associated with this project have been generously sponsored by APEGS, MacPherson Engineering, Uponor and Fries Tallman.

Land is returned to its original state following well reclamation.

Edge Liability Risk Management

THE COMPANY:

Edge Liability Risk Management, founded in 2016, is a firm that specializes in managing oil and gas environmental liabilities, with a focus on risk assessment. Edge's industry-leading solutions allow operators to realize higher sale multiples on properties and unlock deals for properties that were once seen as unsellable.

THE ACHIEVEMENT:

Edge Liability Risk Management was founded on one basic principle – how to incentivize oil and gas operators to do more abandonments and reclamations.

This was the question that CEO and co-founder Lex Ewen, P.Eng. asked himself while involved with his first company Entrack Consulting Ltd. Lex co-founded Entrack, a firm that specializes in turnkey abandonment solutions downhole work all the way through to the reclamation certificate.

The inventory of inactive wells was growing, but capital deployment to abandonment and reclamation activities was not following suit.

"With depressed commodity prices and no regulatory push, we needed to find a way to incentivize operators to accelerate the number of abandonments and reclamations they perform annually," Ewen said.

With the large volume of inactive wells in Western Canada (more than 26,000 in Saskatchewan and more than 80,000 in Alberta, at the time), along with the pending Redwater Energy ruling, it was clear that an industry solution was needed. Thus, the Edge model was born.

The Edge model allows operators to transfer their liabilities to Edge for the cost of abandonment and reclamation. It can help clients shed environmental liability and provide cost certainty to abandonment and reclamation programs.

However, with such a specialized model comes an equally specialized challenge.

"We knew that if we were going to be a company that only owned inactive wells, we would need a robust risk management program – one that far exceeded anything seen in traditional oil and gas risk assessment," Ewen said.

THE TEAM:

Lex Ewen, P.Eng – CEO at Edge

A University of Regina graduate in petroleum engineering, Ewen is a former manager at Rand Oil where he consulted on a number of oil and water flood projects. His first company, Entrack Consulting Ltd., is a firm that specializes in turnkey abandonment solutions.

John Styles, P.Eng, FEC – Chairman

Styles is a professional engineer with more than 30 years experience in the oil and gas industry. Styles evaluates the model from a practical point of view. The two met at the University of Regina where Styles taught Evaluation of Oil and Gas Properties for 4th year engineering students.

Ed Dancsok, P.Eng., P.Geo.

Dansock boasts more than 37 years experience in the oil and gas sector. Ed is the former head regulator and Assistant Deputy Minister of the Saskatchewan Ministry of Energy and Resources. As the Energy Assistant Deputy Minister, Ed demonstrated leadership in the promotion, development and regulation of the oil and gas industry in Saskatchewan.

Bryan Sigurdson, FSA, FCIA – Chief Risk Officer

Sigurdson has more than 40 years experience in insurance and risk management. Bryan is the former Chief Actuary and Chief Risk Officer of Co-operators.

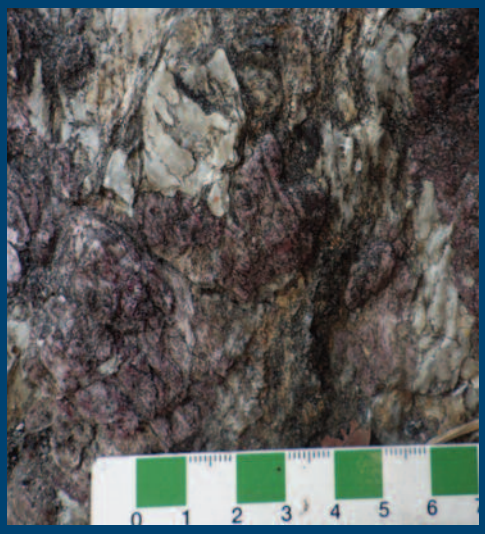
Greg Sawchenko, B.Comm – VP Business Development

Greg has more than 20 years of experience in oil and gas land management and negotiations. Prior to joining Edge, Greg was the VP of Land for Baytex Energy.

Gems of Geoscience

Anyone who spends a minute talking to a geoscientist learns that almost all of them have a beloved rock collection. In this regular section of *The Professional Edge,* we learn about geoscientists and their profession through their favourite rocks. In this issue, we talk with Samantha Van De Kerckhove, Geoscientist-in-Training, a Precambrian Research Geologist at Saskatchewan Geological Survey.

Taking a look at the outcrop with my hand lens.



Cordierite (blue) and garnet (red) clusters within a quartz-rich portion (white) of the outcrop.

Sillimanite City

Sillimanite City is the fanciful name given to an outcrop that I mapped on the shoreline of Robertson Lake in northern Saskatchewan, approximately 35 kilometres west of the Seabee Gold Operation and 100 kilometres northeast of La Ronge. The outcrop was discovered during my 2018 bedrock mapping field season.

This outcrop is notable because of its atypical mineral assemblage and mineral replacement textures. It's composed of the minerals quartz, potassium feldspar, plagioclase, biotite, sillimanite, garnet, cordierite, magnetite and muscovite, listed in order of decreasing abundance.

The significant amount of sillimanite in this outcrop gives the rock a fibrous, almost furry-looking texture when broken.

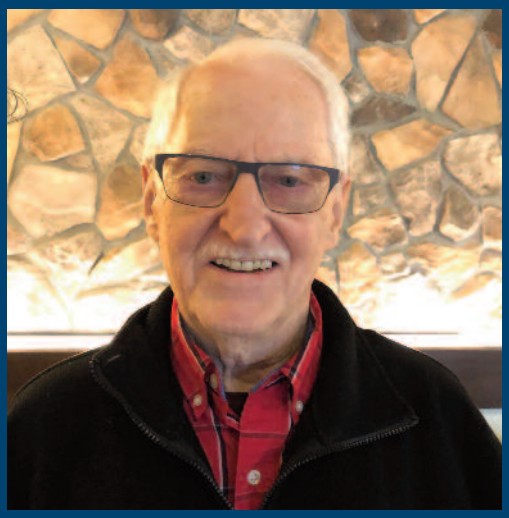
Both sillimanite and garnet are metamorphic minerals, which means they formed in solid state in the Earth's crust, under high pressure and temperature. Garnet overgrowing sillimanite implies multiple phases of metamorphism and/or metasomatism, which is the chemical alteration of a rock by fluids. There are also aggregates of garnet and magnetite up to three centimetres in size across the outcrop, which is uncommon in this area. Coarse cordierite, a metamorphic mineral that is uncommon in this area, is found within the quartz-rich portions of the outcrop.

Located within a 1.8 billion-year-old mountain belt, this rock has been subject to a complex geological history. It is also located along an approximately 250-kilometre-long fault, the Stanly Shear Zone. Fluids moving along this shear zone likely altered this rock, accounting for the atypical assemblage of minerals. Attempting to determine exactly what type of rock Sillimanite City was prior to metamorphism and alteration is a conundrum which has yet to be solved, and thus, it continues to hold my fascination.

One of the many reasons I enjoy being a field geologist is the constant exposure to the extensive flora and fauna of Saskatchewan's north.

In this respect, Sillimanite City is once again memorable because, at this location, my assistants and I discovered a new-to-us biological phenomenon: a small, two-centimetre long, transparent gelatinous blob with pink spots attached to a rock under the waterline. My best guess is that this was the egg sack of a water spider who was hanging out nearby, but I'd love to hear from anyone who knows what it is.

Member Profile



In this issue, *The Professional Edge* chats with Bill Eatock, P.Eng., FEC, a past president of APEGS (1982).

Tell us about your personal and professional background.

It started in 1958 at the University of Toronto Mining Engineering. From there, I spent time with several companies, including Denison Uranium Mine, Aluminium Company of Canada, Harvey Aluminum, IMC Potash, Allan Potash, Management University of Western Ontario, PCS, Manager Allan, General Manager Lanigan. I retired in 1998.

Why did you choose to go into engineering?

There were several factors - my strengths in school were in math and science. Plus, I liked minerals and metals. I read too much about the romance of mining and geology. My older brothers were in engineering.

Did you have any engineers in the family who influenced you?

My father took one year of engineering in university. Unfortunately, he couldn't afford to continue. My older brothers enrolled in engineering as well.

What was your first job after university?

I was at the Denison Mines (uranium).

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

My service to the engineering profession.

Do you have a favourite memory/moment during your time as APEGS president?

Raising Reg Bing Wo's status from registrar to manager. Having a huge lobster (plastic) piped in to Reg's table at an official dinner. The chef did it up so well that we had a hard time getting Reg to stop trying to eat it.

Plus, receiving a plaque of appreciation from our APEGS Angels at the end of my term.

What are your interests outside of work?

My family and golf (when I was young and able). CIM (Canadian Institute of Mining and Metallurgy) and Saskatoon Engineering Society, prior to my retirement.

What is your favourite vacation spot?

I love to visit Greece.

What is your favourite book?

Aku Aku by Thor Heyerdahl.

Have you ever met anyone famous?

While on a cruise on the Queen Mary from New York to London, (Canadian Space Agency) astronaut Bob Thirsk was a guest speaker. He spoke about his 3,000 orbits.

He is both an engineer and a physician.

I reminded him of his first trip as an astronaut to Saskatoon where I hosted him and took him curling for the first time. I think that was the highlight of his visit. I took a lot of pictures only to find I had no film in the camera.

Of course, too much has happened since for him to remember. I am not sure of the year, but I was active on council at the time.

(Bob Thirsk holds the Canadian record for the most time spent in space. He became an officer of the Order of Canada in 2013.)

What do you do for continuing professional development?

Trying to contain my dementia with sudoku and Lumosity games.

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

A few people come to mind. My wife Pat. Hal Mackle, Refinery Superintendent, IMC K2 Potash. Pieter Van Vliet, P. Eng, FEC (President of APEGS in 1978).

Notes from APEGS Council

The APEGS Council met December 5 - 6, 2019 in Regina. The meeting was attended by 16 of 19 councillors and the director to Engineers Canada. Alex Chabun, APEGS Registration Assistant, attended the meeting as a guest. Tracey Bakkeli, the APEGS governance review consultant, attended a portion of the meeting as a guest. Council will meet next February 6 - 7, 2020 in Saskatoon.

Council received the following presentations and information items:

- Activity updates from the constituent society liaisons, the ACEC-SK liaison and the 30by30 Champion's Group liaison.
- The Executive Director and Registrar provided council with an update on staffing and the co-op students hired to provide IT support.
- Tracey Bakkeli, the APEGS governance review consultant, provided council with a presentation on the governance report "APEGS Volunteer Governance Review – Assessment and Recommendations", dated November 25, 2019.
- The Manager of Communications presented the 2020 strategic communications plan.
- The Director of Special Projects briefed council on the progress with the implementation of the member database.
- The APEGS Director to Engineers Canada reported on the activities at the national organization.
- The APEGS Director to Geoscientists Canada provided a written report on the activities at the national organization.
- The Director of Registration reported on the PNWER winter meetings.

Council passed motions as follows:

- Approving the revised criteria for the seven APEGS Awards, removing the Saskatchewan residency requirement to be eligible to receive an award.
- Approving the revised Terms of Reference for the Education Board.
- Approving the Association's 2020 budget with revisions.

Notes from APEGS Council

- Approving version 13 of the Competency Assessment Guide for Applicants, Validators and Assessors.
- Requiring committee members on the Experience Review Committee and the Licensee Admissions Committee that assess experience to be professional members, which includes engineering licensees or geoscience licensees.
- Approving the project timeline for adoption of competency-based assessment of geoscience work experience. The competency-based assessment of geoscience work will become effective January 1, 2021, conditional on the online reporting system provided by Engineers and Geoscientists of British Columbia becoming available by that date.
- Approving the revised Terms of Reference for the Academic Review Committee.
- Approving the revised Terms of Reference for the Professional Practice Exam Committee.
- Approving the revised policy PPE2.0 – Professional Practice Exam Eligibility.
- Approving 60 Continuing Professional Development credits for the publication of a technical textbook to be claimed over two years under the category of Contribution to Knowledge.
- Instructing the Experience Review Committee to look at other alternatives to interim assessments, noting that Competency-based Assessment applicants are no longer able to receive an interim assessment.
- Requiring all Engineers-in-Training being assessed in the Competency-based Assessment system to demonstrate competencies in a Canadian or Equivalent-to-Canadian work environment, to take effective January 1, 2020.
- Approving an updated process for reviewing reports submitted under the Competency-based Assessment system.
- Approving the updated policy PPE3.0 – PPE Candidate Conduct.
- Approving the updated policy CPD6.0 – CPD Review and CPD6.1 – CPD Registrar's Action.
- Approving Life Membership for the following members: Fetsch, David J., P.Eng., Hantke, Glenn M., P.Eng., Lett, G. Glenn, P.Eng., Mann, Sarla D., P.Eng. and Petzold, Bryan E., P.Eng.
- Appointing Peter Jackson, P.Eng., FEC, FGC (Hon.) to the Discipline Committee for a three-year term.
- Approving the updated policy Admin6.0 - Administration of Fees.
- Appointing Andrew Lockwood, P.Eng., FEC, as Chair of the Audit Committee for a two year term. Stormy Holmes, P.Eng., FEC, FGC (Hon.) and Wendell Patzer were appointed as members of the Audit Committee for a one year term and Jessica Theriault, P.Eng. as a member of the Audit Committee for a two year term.

Council noted and received the following reports:

- Registrar's reports for August through October 2019.
- The report on compliance activities from September 1 to November 18, 2019.
- The unaudited financial statements for September and October 2019.
- Executive Committee minutes, Board minutes and the reports from the committees and task groups, Abridged Investigation Committee minutes, and the Discipline Committee minutes.
- The Governance Review Report from Tracey Bakkeli.

Call for Council Nominations

Nominating Committee

The Nominating Committee is soliciting names for the council positions described below. You may contact staff support to the Nominating Committee, Shawna Argue, MBA, P.Eng., FEC, FCSSE, FGC(Hon.) at sargue@apegs.ca to propose names of potential candidates. Shawna may also be reached through the APEGS office in Regina by phone at 306-525-9547 (toll free 1-800-500-9547 North America) or facsimile 306-525-0851.

The Bylaws require the Nominating Committee to nominate, whenever possible, the person holding the office of President-Elect for President and one person for the position of President-Elect (typically the person holding the office of Vice President). Andrew Lockwood, P.Eng., FEC is the current President-Elect and Kristen Darr, P.Geo. is the current Vice President. The Nominating Committee is also required to nominate, whenever possible, at least two persons for Vice President and at least two persons for each vacancy on the Council.

Submissions of Nominations

Any five members may nominate over their signatures an eligible nominee for any elective office, except that of President. Such nominations shall be in the hands of the Registrar at least forty-five days before the election is to take place. To meet this requirement, the nominations must be in the APEGS office no later than 5 p.m., Thursday, March 5, 2020, as the election will take place when ballots are counted on Monday April 20, 2020, the "polling day".

2020 Vacancies & Terms of Office

Officers

- President-Elect – one-year term
- Vice President – one-year term

Group and Electoral District Councillors

To serve a three-year term

- Group VI (Chemical, Ceramic and Metallurgical)
- South-West District
- North District
- Geoscience North District

Terms of Office

Only members in good standing are eligible for nomination.

A person elected to Council may only hold office while a resident of Saskatchewan.

A person nominated for President-Elect must have served at least one full year (i.e. from the close of business at one annual meeting to the close of business at the next annual meeting) as a member of APEGS Council prior to the date on which they would assume office as President-Elect.

A person nominated as a representative of an electoral group must be classified with the association in that electoral group. The Councillor representing Members-in-Training can complete the term of office after obtaining his or her P.Eng., or P.Geo. status.

http://www.apegs.ca/Portal/Pages/council-elections

A P E G S

Association of Professional Engineers & Geoscientists of Saskatchewan

2020 Annual Meeting
and Professional Development Conference

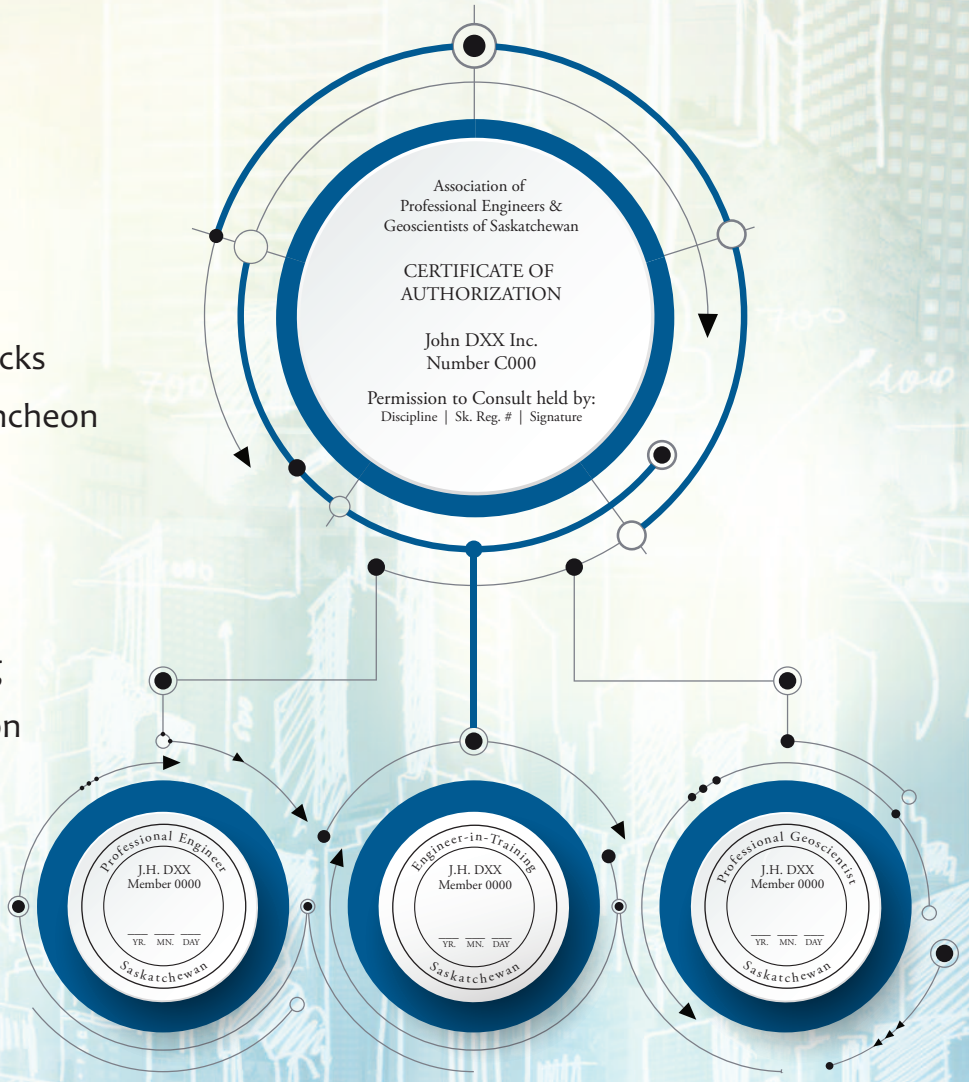
April 30 – May 2, 2020
Delta Bessborough and Sheraton Cavalier
Saskatoon SK

Thursday, April 30
Evening Welcome Event at
Nutrien Wonderhub

Friday, May 1
Breakfast Plenary
Professional Development Tracks
Professional Development Luncheon and Keynote
President's Reception

Saturday, May 2
90th Annual Business Meeting
Member Recognition Luncheon
Awards Banquet

Registration will open
February 2020
www.apegs.ca



Regulating the professions. Protecting the public.

8:45 - 9:45 am	**PLENARY SESSION:** Trends in/Importance of Self-Regulation			
	TRACK 1 Practising Geoscience	**TRACK 2** Practising Engineering	**TRACK 3** Practising the Professions	**TRACK 4** Regulating the Professions
10:00 - 11:00 am	**The History of Carbon Capture and Storage in Saskatchewan: Does it have a future?** Erik H. Nickel, M.Sc., P.Geo.	**Saskatoon Traffic Bridge: Bridging Old to New** Raegan Pollard, P.Eng., PMP, GSC	**The Art of Conversation** Lisa Moretto	**Indigenous Consultation & the Public Interest for Engineers & Geoscientists** Benjamin Ralston
11:15 - 12:15 pm	**Geoethics in Reporting for Resource Companies** John Pearson, M.Sc., P.Geo., FGC, FEC(Hon.)	**Retrospective on the Regina Bypass Project** Nancy Inglis, P.Eng.	**Five Attributes of an Inspiring Leader** Catherine Ducharme	**Overview of Proposed Bylaw Changes** **Competency-based Assessment for Geoscientist-in-Trainingg** Kate MacLachlan, Ph.D, P.Geo., FEC (Hon.), FGC **Online Register** - Shawna Argue, P.Eng., MBA, FEC, FCSSE, FGC (Hon.)
12:30 - 2:15 pm	**PROFESSIONAL DEVELOPMENT LUNCHEON KEY NOTE JAY FAMIGLIETTI** Hydrology, Water Resources and Climate Change			
2:30 - 3:30 pm	**Williston Basin Geothermal Power Project Development (Canada)** Ashley Drobot, P.Geo.	**Climate Change** Dr. David Sauchyn, P.Geo.	**Indigineering - Engineering Through Indigenous Knowledge** John Desjarlais, P.Eng.	**Your Duty and the Processes of Investigation and Discipline** Chris Wimmer, P.Eng., FEC
3:45 - 4:45 pm	**Critical Materials for Green Energy: Global to Local Geological Constraints** Kevin Ansdell, Ph.D., P.Geo., FEC(Hon.)	**Production of Clean Energy: What Can Engineers Do?** Dr. Ralph Idem, Ph.D., P.Eng.	**Reconcilliation in Action** Matthew Dunn, P.Eng.	**Communication as Ethical Action** Graham Centre

PROFESSIONAL DEVELOPMENT LUNCHEON KEYNOTE SPEAKER

Hydrology, Water Resources and Climate Change

Jay Famiglietti

Professor, NASA Senior Water Scientist and Global Water Crisis Specialist

1st Century Water Security as Viewed from Space

Arguably the most palpable impacts of global change are to water and water availability, including changing patterns of rain and snowfall, increasingly extreme flooding and drought, critical implications for groundwater depletion and more. In this lecture, Prof. Famiglietti draws on his deep expertise as a pioneering researcher in the field of satellite hydrology to deliver a compelling presentation that has been captivating audiences for the last several years.

Professional Develop Tracks

TRACK 1
Practising Geoscience

10-11 a.m.

The History of Carbon Capture and Storage in Saskatchewan: Does it have a Future?

Erik H. Nickel, M.Sc., P.Geo.

Starting in the late 1990s with a project near Weyburn, CCS in Canada was born. The combination of some visionary policy makers, a willing resource company and a newly minted research centre in the province gave us the opportunity to be the first. The governments of Saskatchewan and Canada are the ones to decide if CCS has a future in the mix of GHG mitigation strategies we employ.

11:15 a.m.-12:15 p.m.

Geoethics in Reporting for Resource Companies

John G. Pearson, M.Sc., P.Geo., FGC, FEC (Hon)

Professional Geoscientists and Engineers are coming under increasing scrutiny for ethical behaviour. APEGS has instituted an annual, online ethics exam that all professional geoscientists and engineers must complete in order to maintain their license to practise. It is incumbent on each of us as professional geoscientists to maintain ethical standards in practice and reporting for both ourselves and our colleagues.

2:30-3:30 p.m.

Williston Basin Geothermal Power Project Development (Canada)

Ashley Drobot, P.Geo.

The DEEP Earth Energy Production geothermal power project is located in southeastern Saskatchewan, a few miles north of the United States border. In December 2018, DEEP successfully drilled the first geothermal test well. The vertical well reached its target total depth of 3,530 metres, the deepest well ever drilled in Saskatchewan's history. This was a major step forward for the first renewable power project of its kind in Canada. This has the potential to be a transformative energy innovation for Saskatchewan.

3:45-4:45 p.m.

Critical Materials for Green Energy: Global to Local Geological Constraints

Kevin Ansdell, Ph.D., P.Geo., FGC, FEC (Hon)

Jurisdictions, companies and individuals around the world are targeting significant increases in the use of renewable energy and electric vehicles to reduce greenhouse gas emissions. Wind turbines, solar panels and batteries require a variety of materials in their production. This presentation will provide an overview of the present and predicted requirements for these materials, their distribution from a global and local perspective with a focus on geological relationships and potential implications for the environment and the economy.

TRACK 2
Practising Engineering

10-11:00 a.m.

Saskatoon Traffic Bridge: Bridging Old to New

Raegan Pollard P.Eng, PMP, GSC

The Bridging to Tomorrow Project, which included the construction of the North Commuter Parkway, Chief Mistawasis Bridge and traffic bridge, was the largest infrastructure project in Saskatoon's history. The new traffic bridge is a modern truss structure that maintains the original heritage of the old bridge. This presentation will provide an overview of the design and construction of the traffic bridge, a key part of this award-winning P3 project.

11:15 a.m.-12:15 p.m.

Retrospective on the Regina Bypass Project

Nancy Inglis, P.Eng.

Check apegs.ca for information.

2:30-3:30 p.m.

Climate Services Training

Dr. Dave Sauchyn, P.Geo.

Municipalities, government agencies and private and crown corporations are engaged in climate risk assessment and adaptation planning. The federal government and most provinces require that engineering design be viewed through a climate change lens. This presentation provides an overview of the status of climate services training in Canada and the level of knowledge required to make the best use climate data.

3:45-4:45 p.m.

Production of Cean Energy: What can Engineers Do?

Raphael Idem, PhD, P.Eng. - Clean Energy Technologies Research Institute, Faculty of Engineering & Applied Science - U of R

Energy is required for industrialization and maintaining and improving our standard of living. The majority of our energy is sourced from fossil fuels. This leads

to the generation of GHGs, especially CO_2, which is blamed for global warming and climate change. This presentation will discuss the strategies and the varied roles engineers can play based on their best strengths to achieve cost-effective solutions that meet the targets.

TRACK 3
Practising the Professions

10:00- 11:00 a.m.

The Art of Conversation
Lisa Moretto

Conversation is "A talk, especially an informal one, between two or more people, in which information and ideas are exchanged". Unfortunately, our technology and business environments are affecting how we communicate and hindering our conversational skills. This session will explore why we avoid the phone or face-to-face conversations, offer tips on how to be a confident conversationalist and suggest situations where the phone or feet are the best tools to use.

11:15 a.m.-12:15 p.m.

Five Attributes of an Inspiring Leader
Catherine Ducharme, CLC, ACC (Smart, Savvy + Associates, Director of Smart Savvy Academy)

People are likely to leave companies if their bosses are horrible. But according to Harvard Business Review, they are more likely to leave because their job isn't enjoyable, their strengths aren't being used and they aren't growing in their careers. This presentation focuses on five game-changing attributes that leaders need to cultivate to help people learn, grow, engage and inspire their best work.

2:30-3:30 p.m.

Indigineering - Engineering through Indigenous Knowledge
John Desjarlais, P.Eng.

This session will share the practice of Engineering through the Cree concept of Mino Pimachisowin - to live a good life. It will explain how the engineering profession can assist with the infrastructural needs of Indigenous communities.

It will also suggest how to help indigenize the profession, making it more accessible to Indigenous people and better for everyone.

3:45-4:45 p.m.

Reconciliation in Action
Matthew Dunn, P.Eng.

This session will focus on actionable strategies that can be applied in the workplace. A review of the 10 Principles of Reconciliation and Call to Action 92 from the Truth and Reconciliation Commission of Canada will lead to a discussion on how to begin your personal and professional journey of reconciliation. Topics such as Indigenization, land acknowledgements, working with elders and barriers to participating in engineering for Indigenous Peoples will be introduced.

TRACK 4
Regulating the Professions

10:00-11:00 a.m.

Indigenous Consultation and the Public Interest for Engineers and Geoscientists
Benjamin Ralston

As the public interest guides both the practice and regulation of professional engineering and geoscience, the role of Indigenous consultation and accommodation in fulfilling this mandate warrants serious attention. This session will introduce the Crown's duty to consult and accommodate Indigenous peoples with a particular focus on its intersections with the varied roles fulfilled by professional engineers and geoscientists.

11:15 a.m.-12:15 p.m.

Overview of Proposed Bylaw Changes: Competency-Based Assessment for Geoscientists-in-Training
Kate MacLachlan, Ph.D, P.Geo., FEC (Hon.), FGC

Online Register - Shawna Argue, P.Eng., MBA, FEC, FCSSE, FGC (Hon.)

At the 2020 APEGS Annual Meeting (business meeting), APEGS members will be asked to vote to approve recommended bylaw changes. This session will provide some background as to why the changes are required.

2:30-3:30 p.m.

Your Duty and the Processes of Investigation and Discipline
Chris Wimmer, P.Eng., FEC

This session discusses on professional and ethical obligations, supplemented with examples of how ethics directly relates to investigation and discipline. Some examples are given of high-profile cases and the ethical shortfalls that lead to the failures.

3:45-4:45 p.m.

Communication as Ethical Action
Jeanie Wills and Deb Rolfes

Being an ethical professional means doing the right thing; However, much of our doing originates in communicating. This presentation explores how communication both builds our ethical character and helps us demonstrate that character in our personal and professional relationships.

Professional Practice Exam and Law and Ethics Seminar

Report On the Professional Practice Exam – 2019

In 2019, 289 candidates wrote the Professional Practice Exam, a decrease of six examinees from 2018.

EXAM DATE	MAY 25	SPRING ALTERNATE EXAM	NOVEMBER 2	FALL ALTERNATE EXAM
# of Candidates	167	30	135	22
Highest Mark (%)	94.5%	96%	91%	94.5%
Average Mark (%)	79.9%	85.8%	76.1%	87%
# Failures*	3	0	3	0

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

2020 Registration, Seminar and Exam Dates

Spring 2020 Exam
March 13, 2020 - Registration deadlines for spring exam and seminar, applications for special accommodations.

April 17-18, 2020
Law & Ethics Seminar (Saskatoon)

May 30, 2020
9:00 am
Professional Practice Exam (Regina and Saskatoon)

Fall 2020 Exam
August 14, 2020 - Registration deadlines for fall exam and seminar, applications for special accommodations

September 25-26, 2020
Law & Ethics Seminar (Regina)

November 7, 2020
9:00 am
Professional Practice Exam (Regina and Saskatoon)

Law and Ethics Seminar

The seminar runs from 8:00 a.m. to 5:00 p.m. on Friday and 8:00 a.m. to approximately 4:30 pm on Saturday. Complete exam information, including the application form and how to order textbooks, can be found at apegs.ca under Apply, Professional Practice Exam.

Fall Professional Development Days Recap

Satyanarayon Panigrahi, P.Eng. with Bob Cooper, P.Eng.

The APEGS Fall Professional Development Days were held at TCU Place in Saskatoon on November 14-15. The Professional Development Committee (PDC) organizers were excited to offer this long standing two-day event once again.

In Track One, the Centre for Technical and Engineering Leadership (CTEL™) offered its third round of courses. Topics included Project Management for Technical Professionals, Effective Meeting Skills, Oral Presentations and Creating an Innovative Environment. These courses are accredited by the Engineering Institute of Canada and allowed participants to learn valuable leadership skills.

The CTEL program consists of 12 courses and participants have the option of taking all four courses or attend individual sessions. If an attendee completes 4 courses they earn a Silver Certificate, 8 courses earns them a Gold Certificate, and 12 courses earn them a Platinum Certificate. During this event, nine attendees earned their Silver Certificate, three earned their Gold Certificate and 1 attendee earned a Platinum Certificate.

Because of the continued positive reviews received from the participants, APEGS will be offering the CTEL program again on March 5-6, 2020 in Yorkton during the Spring Professional Development Days.

The second professional development track was not to be outdone by the first. APEGS was pleased to offer a diverse range of topics for members. Courses offered were Constructing Safety Leadership, Use of Seals and Digital Signatures, Decommissioning of the Mosaic Esterhazy Transition Project, Planning for Relinquishment of the Decommissioned Cluff Lake Uranium Mind Site, Called to Lead, Ethical Conduct in a Downturn Economy, and Contract Management.

The PDC wishes to thank all of the attendees and speakers for participating in this year's event. Please check the APEGS website in January 2020 for information on the upcoming Spring Professional Development Days in Yorkton on March 5-6, 2020.

Continuing Professional Development

The Continuing Professional Development (CPD) Program requires APEGS members to complete ongoing professional development activities as a way to maintain and improve their competence. It encourages members to engage in lifelong learning to protect public health, safety and welfare. The program provides tools for members to assess their current skills, knowledge and abilities, determine activities to maintain or enhance them, and report completed activities online to APEGS as professional development credits. From more information go to CPD at **apegs.ca**

Upcoming Professional Development Events

Spring Professional Development Days

Yorkton, SK
March 5 - 6, 2020
Registration is open

Track 1 CTEL courses include:

- Leading the Way
- Communicating in Business
- Managing Change
- Thinking Ethically

Track 2 Courses - To Be Determined

Get to the Point! - A Practical Writing Course for Technical Professionals

Saskatoon, SK
April 29 - 30, 2020
Registration opens in February 2020

For more details and pricing visit **apegs.ca**.

Not getting PD opportunity emails?

Go to your online profile. Under My Profile, scroll to the bottom to select Communications and when the next window opens check the preference APEGS promotional emails.

Looking for Ethics Training?

Of the many ways to get ethics training, here are two options that APEGS provides:

APEGS Online Ethics Modules

- Obtain your annual ethics credit today by completing module 1, Professionalism and Ethics, which is free for all APEGS members.
- For more information and to access the module please visit www.apegs.ca.
- Module 2 is on Conflict of Interest and will launch in April 2020. Stay tuned for more details.

Fast Fact:

As of December, more than 1,700 members have enrolled in the free APEGS online ethics module.

In-person Ethics Presentations

If your organization is interested in hosting an ethics training session for your employees or members contact Jolene Arthur at cpd@apegs.ca to book.

Fast Fact:

Twenty-three organizations in Saskatchewan invited APEGS to provide them with an in-person ethics presentation in 2019.

He Shoots, He Scores!

Coaching sports counts as participation credit for CPD. You can claim up to 10 credits per year for community involvement.

Annual Verifiable Ethics Component

What you need to know

Obtain one cumulative hour annually

Examples include:

- APEGS online module
- Professional development days course
- Ethical moments during meeting
- Employer programs
- APEGS Law and Ethics Seminar

Documentation is required for verification

Examples include:

- Certificate of completion
- Sign in/out sheet
- Meeting minutes that documents who was present, the amount of time spent discussing ethics and a summary of the ethics topic

Report your activity online to APEGS

Procedure:

- Check the ethics training box on the CPD section of your online profile
- Record the time spent doing the ethics training under formal activity.

For more information, go to CPD at apegs.ca

50th Saskatchewan Geological Open House

Chocolate rocks were a hit among guests at the Saskatchewan Geological open house.

This past year marked the 50th anniversary of the Saskatchewan Geological open house. It was held Dec. 2-4, 2019 at the Delta Bessborough in Saskatoon and it was a great success.

Attendance was 822 people, coming very close to surpassing the record. Congratulations to the Saskatchewan Geological Society, the Saskatchewan Geological Survey and their organizing committee.

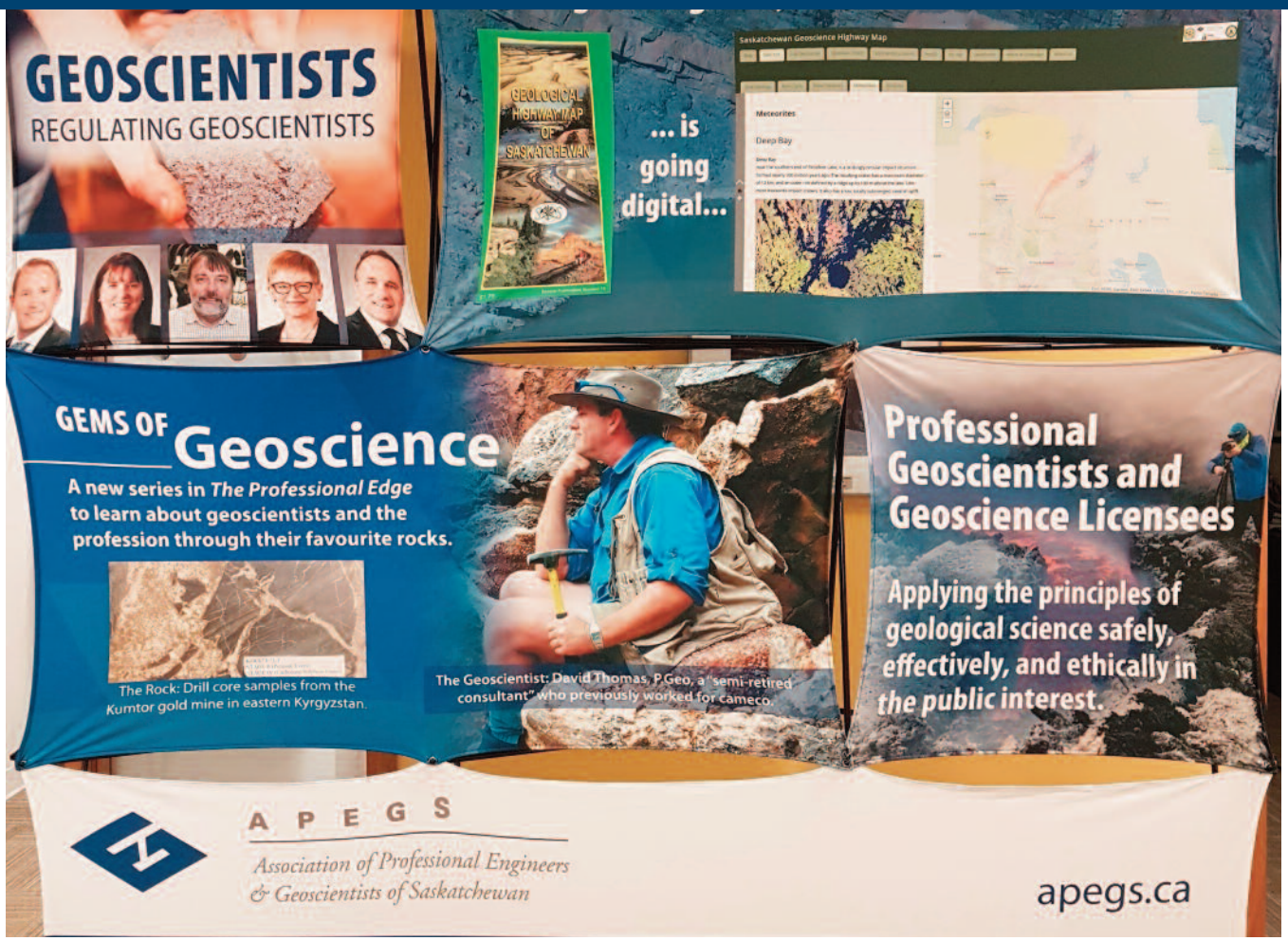
The public lecture was on "The Sleeping Dragon", the world's best-preserved armoured dinosaur, by Dr. Caleb Brown of the Royal Tyrell Museum in Drumheller, AB.

To commemorate the 50-year history of the Saskatchewan Geological Open House, the planning committee hosted a reception. Executive Director and Registrar Bob McDonald provided congratulations on behalf of APEGS.

APEGS council member Cory Belyk, P.Geo., gave a presentation on geoscience and self-regulation. Visit **www.openhouse.sgshome.ca** to view the presentation.

In addition, APEGS created a new tradeshow booth attended by staff members and APEGS volunteers who answered questions about licencing and regulation as they apply to geoscience.

Attendance at the Saskatchewan Geological open house exceeded expectations.



50 Years of Open House

FROM SASKATCHEWAN GEOLOGICAL SOCIETY 50TH ANNUAL OPEN HOUSE EVENT PROGRAM

From its humble beginnings at the Saskatchewan Museum of Natural History in Regina (now known as the Royal Saskatchewan Museum), where a handful of geoscientists gathered to share their research findings, the Saskatchewan Geological Open House has grown. It has evolved into the province's premier minerals-focused geoscience event, now routinely attracting over 700 delegates each year.

Originally established as a means to disseminate public geoscience research, early Open House talks and posters focused on mapping and research done by the Saskatchewan Geological Survey, the Saskatchewan Research Council, and the geology departments at the U of R and U of S.

By the mid-1990s, the Open House relocated to Saskatoon and was broadened to include presentations from mineral exploration companies who shared project updates and highlights.

As the event grew, a trade show component was added, providing a venue for exploration companies and service providers to meet and develop partnerships for future field programs.

More recently, the Saskatchewan Geological Survey has partnered with the Saskatchewan Geological Society to host the conference, as it serves to fulfill both organizations' respective mandates of fostering the responsible development of the province's resources and of promoting geoscience.

Competency-Based Assessment

New Experience Assessment System for Geoscience – Online Competency-Based Assessment

Introduction

Prior to being granted a licence, a geoscience applicant must demonstrate their ability to practise geoscience. The onus is on the applicant to provide evidence that they possess, through experience, a satisfactory capability to practise geoscience at a professional level.

Many of Canada's geoscience regulators have implemented or are moving toward competency-based assessment (CBA) of geoscience experience. To this end, a Geoscientists Canada multi-year, pan-Canadian CBA project has been undertaken with participation from geoscience regulators in several provinces and territories. In the current phase of this project, Engineers and Geoscientists BC's online competency-based assessment system is being adapted for use by other regulators in Canada.

APEGS' Council proposes to adopt this new experience assessment system effective Jan. 1, 2021. It would apply to professional geoscientist applicants (i.e. geoscientists-in-training) if it is passed by the APEGS membership at the May 2, 2020 annual meeting.

All requirements remain the same, including four years of experience, at least one year of experience in a Canadian or equivalent-to-Canadian environment, and the possibility to count up to one year of pre-grad experience for eligible applicants, as well as the others that are currently in place.

Note that APEGS launched CBA for engineering experience in January 2019.

Benefits of Competency-Based Assessment

Competencies are observable and measurable skills, knowledge, abilities, motivations or traits required for professional registration that are demonstrated through the actions and behaviours of the applicant. The CBA system permits a quantitative assessment of applicants using a more precise measuring system than the current APEGS experience review guidelines. It is a more explicitly described and defined measurement tool to assess readiness for licensure. What constitutes acceptable geoscience experience is not changing — we are better defining it. This makes the assessment more objective, transparent and consistent, and it increases the confidence of all who participate in the process including applicants, validators, employers and assessors on the Experience Review Committee.

Description of the Competency-Based Assessment Framework

The framework makes use of four competency categories, which are groupings of a total of 29 competencies or skills:

- Professionalism [seven competencies]
- Scientific method [five competencies]
- Geoscience practice [seven competencies]
- Communication and management [10 competencies]

The four categories represent the areas in which professional geoscientists of all disciplines must be competent to ensure effective practice and public safety. Each competency category contains a list of the competencies required in that area. The complete details are posted to the APEGS website under Members, Competency-Based Assessment - Geo. Wording may be revised slightly in the final version of the pan-Canadian competencies; however, the intent will remain the same.

Achievement of each category is measured through an assessment rubric that outlines six different levels of competence (0-5). A successful candidate must meet each of the competencies in each category at a minimum rating of 1 on the rubric while achieving the required minimum category average 'entry to practice' rating level of 3.

Online Submission

The use of an online system enables applicants to easily report and validators to validate their geoscience experience from anywhere in the world (keeping in mind that a minimum of one year of Canadian or equivalent-to-Canadian experience is still required). Applicants, validators and assessors are provided with a personal login and once applicants complete their competency entries, the applicable validators are automatically notified when the competencies that pertain to them are ready to validate.

For a complete description of the online submission process, refer to the APEGS website under Members, Competency-Based Assessment - Geo.

Timeline and Next Steps

Feb. 6-7, 2020: Council finalizes the geoscience CBA framework and the necessary revisions to the bylaws to accommodate these changes.

The bylaw change details will be provided to the membership with the annual meeting notice package. As well, the current draft of these documents are posted on the APEGS website under Members, Competency-Based Assessment - Geo. There will also be presentations scheduled for March or April 2020 that will be announced by email and on APEGS' events calendar.

May 2, 2020: APEGS membership ratifies Council's recommendation to switch to CBA for geoscience at the annual meeting.

September 2020 (approximately): Ministerial approval of bylaw changes.

Jan. 1, 2021: CBA of geoscience experience comes into effect.

Transition from Current Experience Reporting System

Applicants may continue in the current experience reporting system if they wish, if they are a current geoscientist-in-training who has submitted one or more experience reports before Jan. 1, 2021. However, they are encouraged and invited to switch to the online competency based-assessment system when it comes into effect.

Applicants will use the new online CBA system if any one of the following situations applies to them:

- Current geoscientist-in-training who has not submitted one or more experience reports on the current paper-based system before Jan. 1, 2021;
- Applicants to APEGS as a geoscientist-in-training on or after Jan. 1, 2021.

Questions and Feedback Requested

Details on these proposed changes are on the APEGS website under Members, Competency-Based Assessment - Geo.

In March or April 2020, APEGS staff will be presenting to the membership and discussing these changes with them. To register, please refer to APEGS' events calendar at **www.apegs.ca** for details on locations and times.

Your feedback and questions are requested. You may do so by attending one of the presentations or by contacting Kate MacLachlan, P.Geo., Director of Academic Review or Tina Maki, P.Eng., Director of Special Projects at 306-525-9547, by calling toll free in North America at 1-800-500-9547, or by emailing to **katem@apegs.ca** or **tmaki@apegs.ca**.

Land Surveying and Engineering – Setting Boundaries

BY CHRIS WIMMER, P.ENG., FEC APEGS DIRECTOR OF PROFESSIONAL STANDARDS

The Saskatchewan Land Surveyors Association (SLSA) has notified APEGS that they have received some reports of APEGS members potentially engaging in the practice of professional land surveying. It is not the intention of APEGS to determine if APEGS members are engaging in the practice of professional land surveying, however APEGS wishes to remind members the importance of understanding the definition of the practice of professional land surveying and the prohibition sections of The Land Surveyors and Professional Surveyors Act.

In Saskatchewan there are more than 60 regulatory bodies. Many of these regulated occupations are related, some by definition some by professional activity. Architecture and engineering, or psychiatry and psychology as examples. Most regulated professions have their own legislation containing sections on protection of title and scope of practice prohibiting non-members from using title or engaging in practicing. Regardless, many professional activities between regulated occupations may appear to overlap. Prohibition and enforcement activity can be alleviated where exceptions to the defined scopes of practice exist, so as not to enforce prohibition on related professionals practising within the meaning of their own legislation.

While practising professional engineering or professional geoscience it is important to understand when you are engaging in the "practice of professional surveying" and recognize when you may have crossed into engaging in the "practice of professional land surveying" as defined in *The Land Surveyors and Professional Surveyors Act*.

It is noted that The Land Surveyors and Professional Surveyors Act does not contain scope of practice exceptions for professional engineers or professional geoscientists, however nothing in this act prohibits APEGS members, or anyone else, from carrying out all or any of the activities of the "practice of professional surveying" which means:

- the determination, establishment or recording, by any means and for any purpose, of the positions of points or natural or man-made features above or below the surface of the earth;
- the determination of the form of the earth;
- the manipulation, integration and analysis of spatial information; (iv) the preparation of maps, plans, systems and documents and giving advice with respect to any of the activities described in subclauses (i) to (iii).

Note however that only a licensed member of the SLSA who is a Saskatchewan land surveyor shall engage in the "practice of professional land surveying" which means:

- the measurement of land, water or air space to determine or establish boundaries delineating any right or interest in land, water or air space above or below the surface of the earth;
- the determination and certification of the location, relative to a boundary, of any natural or man-made features above or below the surface of the earth;
- cadastral surveying, that is, the conducting of surveys or reporting on surveys to establish, locate, define or describe lines, boundaries or corners of parcels of land or land covered by water, and includes the recording of those boundaries and related details of surveys;
- the integration of any monument defining a boundary, either directly or indirectly, with a network of geodetic points of any order of precision and the determination of co-ordinate values for the monument when those values are used in the development or maintenance of a geographic information system which will be used in whole or in part for the purpose of determining or establishing boundaries;
- the establishment of photogrammetric control points for the purpose of determining or establishing boundaries; and
- the preparation of maps, plans and documents and giving advice with respect to determining or establishing boundaries;

Both APEGS and the SLSA welcomes opportunities to speak with members on this topic. The SLSA can be contacted at 306.352.8999 in Regina, **www.slsa.ca**.

The Ritual of the Calling of Geologists and Geoscientists

SUBMITTED BY: DR. JANIS E. DALE, P.GEO., FGC

The gathering and Ritual of the calling of an Earth Scientist at The University of Regina is for the purpose of obligating individuals who are graduates of Geology and Geoscience at The University of Regina. The intent is that the ring be a source of pride for all geosceintists as they join the ranks of engineers with a symbol of their commitment to ensuring the integrity of our geoscience discipline.

There have been two Earth Ring Ceremonies at the University of Regina, the first in April 2018 and the second in April 2019, at which 18 individuals took the oath of obligation. Some were graduating students, MSc students and former students. The next one will be in spring 2020. If you have graduated from the University of Regina and would like to be obligated with an earth ring, contact Dr. Janis E. Dale, P. Geo., FGC at janis.dale@uregina.ca by March 1, 2020.

The Concept

Dr. Stephen Bend, P.Geo. who retired April 30 2019, and is now a Professor Emeritus at the University of Regina, developed the concept and wrote the program and ceremony based on the writings of Rudyard Kipling and the iron ring ceremony as inaugurated by H.E.T Haultain (1925).

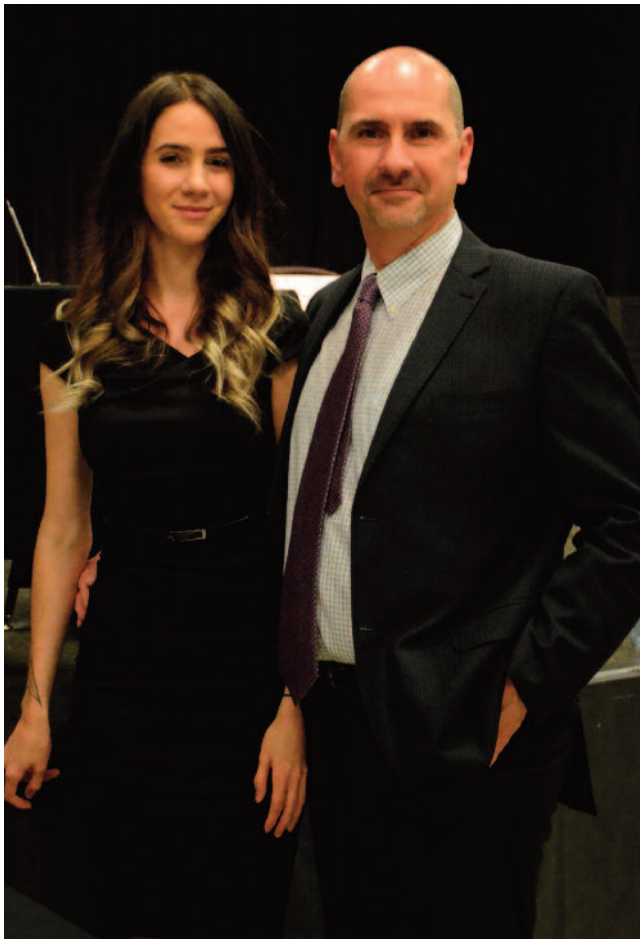
Part of the ceremony is:

"The Earth Ring Ceremony is a formal ceremony celebrating the integrity of the professions of both geologist and geoscientist. These professions have always had a great impact on society, in particular in the areas of resource exploration, and more recently with the growing importance of environmental issues, both of which ensure our professionals will continue to play a major role in society.

The Ring Ceremony supports and enhances our best intentions, thoughts and practices as professional Earth Scientists, and through the Earth Ring ceremony, which bears similarity to the Iron Ring Ceremony of the Engineer, we endorse our close bond with the engineers."

The Ring

According to Bend, "The ring is of metal from the earth, shiny as a bright new idea. It is round as a great circle encompassing this earth and marked with a crossed hammer and seismic trace. Without beginning and without end, the ring represents to those that wear it, the continuous and continuing interplay of ideas, of instrumentation and of material realities. The ring represents the public oath of obligation accepted by the recipient and is not a bauble or charm, but represents the serious attitude that must uphold the 'integrity of their obligation".



Thomas Schmidt P.Geo., a former Geology student from the U of R, received the ring alongside his daughter, Jaime Schmidt, who graduated from Geology at the U of R in April 2019.

Ceremony Proceedings

Recipients are asked if they accept the obligation in public and are then presented their ring and certificate. An honourary ring-bearer accepts and approves the offered obligation and approves the candidates to be worthy to accept the Earth Ring and its obligations. An honourary ring recipient is chosen each year for services to Geoscience and the Department of Geology and its students and programs.

ACEC Awards

PINNACLE Award & Award of Excellence
Transportation Category
Associated Engineering (Sask) Ltd.
Project: Whelan Bay Access Roadway
Client/Owner: Ministry of Highways & Infrastructure

Award of Excellence
Municipal Infrastructure & Water Resources Category
Associated Engineering (Sask) Ltd.
Project: City of Regina Hauled Waste Receiving Station
Client/Owner: City of Regina

Award of Merit
Municipal Infrastructure & Water Resources Category
AECOM Canada Ltd.
Project: Elk Point Sanitary Sewer Lift Station & Force Main
Client/Owner: City of Saskatoon

Award of Merit
Transportation Category
ISL Engineering and Land Services Ltd.
Project: Diefenbaker Bridge Barrier and Guardrail Inspection and Repair
Client/Owner: City of Prince Albert

Award of Merit
Environmental Category
McElhanney Ltd
Project: Badlands Parkway
Client/Owner: Parks Canada

Award of Merit
Municipal Infrastructure & Water Resources Category
Stantec Consulting Ltd
Project: Third Sewage Force Main
Client/Owner: City of Regina

Consulting Engineer of the Year as presented by the Ministry of Highways and Infrastructure
Tetra Tech Canada Inc. was awarded the Consulting Engineer of the Year as presented by the Ministry of Highways and Infrastructure

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2019 Mentor Award
The 2019 ACEC-SK Mentor Award was presented to
Don C.K. Poon, P.Eng., C.Eng., Eur.Ing., MICE, CMC, CCCA, F.ASCE.

2019 Young Professional Award
Alyson Stout, B.A.Sc., McElhanney Ltd

(L to R): Nancy Inglis, P.Eng., PMP, ACEC-SK Chair presents the 2019 Young Professional Award to Alyson Stout, B.A.Sc.

2019 Brian Eckel Memorial Scholarship Award
The 2019 Brian Eckel Memorial Scholarship Award was presented to **Victoria Guenter**, a third year College of Engineering student at the University of Saskatchewan, studying towards a dual degree in Computer Engineering and Computer Science.

(L to R): Nancy Inglis, P.Eng., PMP, ACEC-SK Chair; Victoria Guenter, 2019 Brian Eckel Memorial Scholarship Award recipient and; Robert Johanson, Ph.D., Engineering Licensee, Head of Dept. of Electrical and Computer Engineering, University of Saskatchewan.

(L to R): The Honourable Russ Mirasty, Lieutenant Governor of Saskatchewan, presenting Shawna Argue, P.Eng., MBA, FEC, FCSSE, FGC (Hon.) the prestigious Lieutenant Governor of Saskatchewan Meritorious Achievement Award.

Meritorious Achievement Award

Shawna Argue, P.Eng., MBA, FEC, FCSSE, FGC (Hon.)

ACEC-SK honoured Shawna Argue, P.Eng., MBA, FEC, FCSSE, FGC (Hon.) as the 2019 recipient of the prestigious Lieutenant Governor Meritorious Achievement Award at their annual Awards of Distinction Nov. 26, 2019 in Saskatoon.

Argue completed a Bachelor of Applied Science in Industrial Systems Engineering at the University of Regina, and later completed a Master of Business Administration at Athabasca University.

She started her career at a manufacturing facility in Yorkton and then returned to Regina to join a consulting company.

She initially worked in electrical and industrial engineering on a variety of projects, but a new opportunity arose in environmental auditing.

When she started her own business, Argue and Associates Management Consultants, hers was the only company that offered these services in Saskatchewan. Therefore, Argue truly is a pioneer in this field. Her unique expertise was sought after worldwide.

She performed her work internationally, including with teams in both Western and Eastern Europe during the days shortly after the Berlin Wall fell. Investors were interested in Eastern European companies and sought Argue's auditing service to gauge risks.

She has also provided consulting services to such organizations as large Saskatchewan mining companies.

Argue has given many hours in support of APEGS including serving as President from 2010 to 2011. She was also a very active volunteer with the Association of Consulting Engineering Companies Saskatchewan, serving as a board member and the inaugural Chair of the Risk Committee.

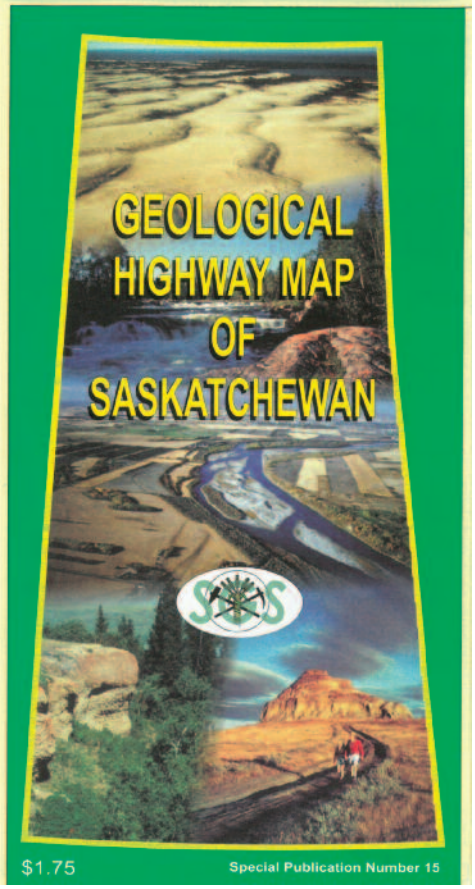
In addition to volunteering in the industry, Argue has contributed to numerous community endeavours. For 10 years she participated in the CIBC Run for the Cure, she was on the Regina Off-Leash Dog Park Committee, was President of the Assiniboia Club and President of the Regina and Business Professional Women's Club, to name a few.

Ms. Argue has received numerous honours and awards including:

- The YWCA Women of Distinction Award in Science and Technology;
- The Engineering Excellence Award and the Volunteer Service Award from the Regina Engineering Society;
- She is an Honorary Fellow of Geoscientists Canada;
- She is a Fellow of the Canadian Society of Senior Engineers; and
- She is a Fellow of Engineers Canada.

ASSOCIATION OF CONSULTING ENGINEERING COMPANIES | SK

Engineering and Geoscience Week

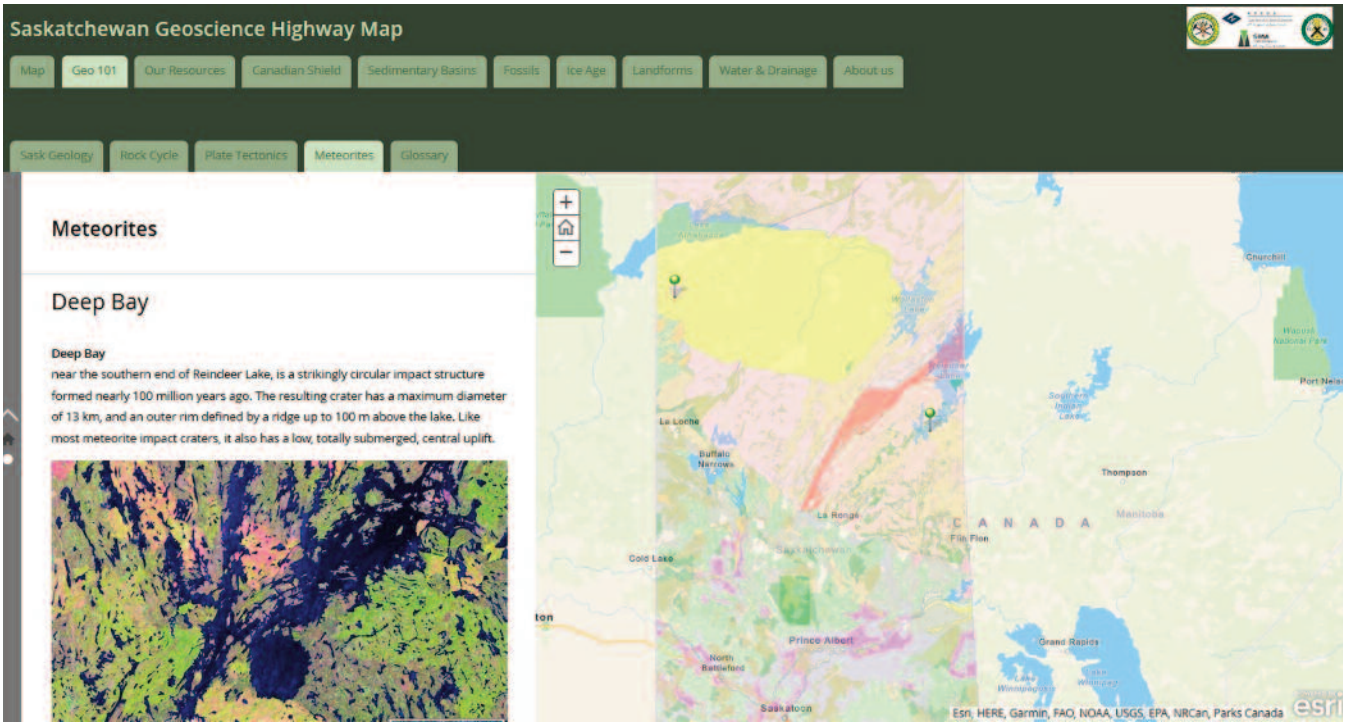


March 1- 7, 2020

In celebration of Engineering and Geoscience Week, APEGS has partnered with the Saskatchewan Geological Society to create and introduce a digital version of the 2002 Geological Highway Map of Saskatchewan.

The digital map will be available online to the public in March 2020. On March 3 - 4, APEGS and the society will introduce the map to Regina and area students at the annual Saskatchewan Geological Society school lecture as a demonstration and a hands on learning experience for students.

APEGS needs about 30 people to volunteer at the school lecture and assist with lessons about the map's geological features. To sign up, visit apegs.ca. Contact Kate MacLachlan, P.Geo., at **KateM@apegs.ca**.



News Beyond Our Borders

World's largest miner appoints Canadian CEO

Postmedia News - Canadian Mike Henry will be the next chief executive of giant Australian miner BHP Group, a decision that could have consequences on whether it pushes forward with a massive potash project in Saskatchewan in the coming years.

Henry, 53, takes the helm in January 2020, leaving a month or so for him to transition from his current role as head of BHP's Australian mining operations, where the company's iron ore mines that account for nearly half its revenue are located.

One item on his eventual to-do list, though not necessarily at the top, will be whether the company will allocate $5 billion to construct the first phase of its Jansen potash project in Saskatchewan. The project would initially add four million tons of potash to the market and as much as four times that over time, which could drastically alter the supply and demand dynamics for existing producers such as Saskatoon-based Nutrien Ltd.

Although BHP has already invested a few billion dollars into Jansen, a decline in potash prices and investor pushback have clouded the project's future.

Henry currently lives in Melbourne and joined BHP's coal business in 2003 in Australia. By 2010, he had moved into marketing, eventually serving as chief marketing officer, before moving back to operations. In 2016, he was promoted to president of the company's mining operations in Australia.

BHP is a diversified miner that produces metals such as iron ore, nickel, zinc and copper, as well as coal, and oil and gas.

The company has been debating whether to build its Jansen potash mine, about 140 kilometres east of Saskatoon, which current CEO Mackenzie has said is part of a long-term strategy to help diversify away from fossil fuels.

Canada universities mourn those lost in plane crash

University Affairs - Canada's university community is stunned and in mourning as the scope of the tragedy becomes clear from the crash of a Ukraine International Airlines flight outside of Tehran on Jan. 8. Dozens of students, professors and researchers from at least 18 universities from Victoria to Halifax have been identified among the victims.

All 176 passengers and crew members on Ukraine International Airlines Flight 752 en route to Kyiv were killed after the aircraft crashed just minutes after takeoff at Imam Khomeini International Airport. Some 138 of those passengers were ultimately travelling to Canada.

The University of Windsor confirmed Hamid Setarah Kokab, a PhD student in mechanical engineering; Zahra Naghibi, a PhD student in civil engineering who had been working with the turbulence and energy lab; and Pedram Jadidi, a PhD student in civil engineering specializing in coastal and offshore engineering died in the crash.

University of Toronto lost Mojtaba Abbasnezhad, a PhD student in electrical engineering and teaching assistant.

Western University confirmed four students among the victims, including Ghazal Nourian, a PhD student in mechanical and materials engineering; Milad Nahavandi, a PhD student in chemical and biochemical engineering; and Sajedeh Saraeian, an incoming master's student in chemical engineering and biochemical engineering.

The CBC notes that some 30 victims were Edmonton residents, most with ties to the University of Alberta. Among them: Mojgan Daneshmand, an associate professor in electrical and computer engineering who held the Canada Research Chair in Radio Frequency Microsystems for Communication and Sensing; her husband Pedram Mousavi, a professor of mechanical engineering who'd received his PhD and MSc from the University of Manitoba; and Nasim Rahmanifar, a master's student in mechanical engineering.

Université du Québec's École de technologie supérieure announced Aida Farzaneh, a lecturer in the department of construction engineering at ÉTS, was among the dead.

The University of Waterloo identified two PhD students who were on the flight, including civil engineering student Mansour Esnaashary Esfahani.

At Dalhousie University, engineering student Masoumeh (Masi) Ghavi died in the crash.

McMaster University stated that two PhD students in the faculty of engineering, Iman Aghabali and Mehdi Eshaghian, were both on the flight.

Razgar Rahimi, a sessional instructor with the faculty of engineering and applied science at Ontario Tech University, was among the dead, according to local media reports. Dr. Rahimi received a PhD in electrical and computer engineering at the university in 2018.

Cristina Amon (MIE)

Dean named to Top 100 list

University of Toronto - The Women's Executive Network announced its list of Canada's Most Powerful Women: Top 100 for 2019, and Dean Emerita Cristina Amon (MIE) is one of 12 selected in the category CIBC Trailblazers and Trendsetters.

The list recognizes the country's highest achieving female leaders in the private, public and not-for-profit sectors.

Amon served as dean of U of T Engineering from 2006-19. As the faculty's first woman dean, she increased both the presence and leadership of women and other underrepresented groups in science, technology, engineering and math (STEM).

For the past three years, the first-year cohort at U of T Engineering has been 40 per cent women; this year's cohort is 42 per cent women, up from 20 per cent in 2006 and the highest percentage in Canada.

During Amon's deanship, the number of women faculty members tripled, from 19 to 57. Nearly 40 per cent of the Faculty's Canada Research Chairs are women, compared to 10 pe cent in 2006. Women lead many multidisciplinary research centres and institutes at U of T Engineering.

Under Amon's leadership, the international profile of U of T Engineering has risen to be known as one of the world's top public engineering schools in all international rankings.

Among her many accolades, Amon received the Engineers Canada Award for the Support of Women and the Engineering Institute of Canada's most prestigious award, the Sir John Kennedy Medal. She has been inducted into the Canadian Academy of Engineering, Hispanic Engineer Hall of Fame, U.S. National Academy of Engineering, Royal Academy of Engineering of Spain and Royal Society of Canada and elected fellow of all the major professional societies in her field.

Electric aircraft takes flight

The Guardian - The world's first fully electric commercial aircraft has taken its inaugural test flight, taking off from Vancouver and flying for 15 minutes.

"This proves that commercial aviation in all-electric form can work," said Roei Ganzarski, chief executive of Australian engineering firm magniX.

The company designed the plane's motor and worked in partnership with Harbour Air, which ferries half a million passengers a year between Vancouver, Whistler ski resort and nearby islands and coastal communities.

Ganzarski said the technology would mean significant cost savings for airlines and zero emissions.

Civil aviation is one of the fastest-growing sources of carbon emissions as people increasingly take to the skies. New technologies have been slow to get off the ground.

The International Civil Aviation Organisation (ICAO) has encouraged greater use of efficient biofuel engines and lighter aircraft materials, as well as route optimisation.

The e-plane – a 62-year-old, six-passenger DHC-2 de Havilland Beaver seaplane retrofitted with a 750hp electric motor – was piloted by Greg McDougall, founder and chief executive of Harbour Air.

On top of fuel efficiency, the company would save millions in maintenance costs because electric motors require "drastically" less upkeep.

However, Harbour Air will have to wait at least two years before it can begin electrifying its fleet of more than 40 seaplanes. The e-plane has to be tested further to confirm it is reliable and safe. In addition, the electric motor must be approved and certified by regulators.

Battery power is also a challenge. An aircraft like the one flown could fly only about 160 kilometres on lithium battery power. While that's not far, it's sufficient for the majority of short-haul flights run by Harbour Air.

News From The Field

MINING

Copper deposit drawing big interest

Saskatoon StarPhoenix - One of the world's largest mining companies is spending millions of dollars to look for copper in northern Saskatchewan — and could commit tens of millions more if its engineers and geologists like what the drill rigs uncover.

Rio Tinto Exploration Canada Inc. spent the summer taking core samples at the Janice Lake copper deposit north of La Ronge after signing an option agreement with Forum Energy Metals Corp., which acquired the property in 2017.

Under the terms of the agreement, Rio Tinto can spend up to $30 million over seven years to acquire an 80 per cent stake in the property, which was staked in the 1960s and bounced between companies before ending up in Forum's portfolio.

Rick Mazur, who started the Vancouver-based junior in 2004 to explore uranium in the Athabasca Basin before decided to diversify, said preliminary drill results have been positive and the future for copper mining is strong.

At the same time, he acknowledged that mineral exploration comes with no guarantees and plenty of risks. Although it was discovered in the 1960s, comparatively little geological work has been done on the property to date.

Sask mine hosts high-grade REE

Mining.com - Appia Energy reports that the Alces Lake property in northern Saskatchewan is host to some of the highest-grade rare earth element discoveries in the world.

The report follows the findings from a prospecting program carried out on the property, including results from channel and grab samples collected during the 2019 summer exploration program.

Appia said the prospecting program led to the discovery of eight new surface outcrop zones and showings with characteristics of the rare earth element mineralization system including visible monazite.

According to the miner, the contacts of the zones and showings remain covered by overburden and therefore have not been fully exposed.

"The discovery of these new zones demonstrates that the system is extensive beneath the overburden. The Biotite Lake discovery shows that the REE mineralization system within the Alces Lake area is far more widespread than previously thought. These discoveries have provided us with new target areas for upcoming exploration. The geological controls of these zones will help with our overall understanding of the system," said James Sykes, Appia's vice-president for exploration and development.

Diamond mine consultations won't reopen

Saskatoon StarPhoenix - A Saskatchewan First Nation is not backing away from its demand that the provincial government reopen consultations on a proposed diamond mine east of Prince Albert, even as the environment minister signalled that is not going to happen.

James Smith Cree Nation has long been concerned about the potential effects of building an open-pit mine in the Fort à la Corne forest, fears that did not change when the provincial government greenlit the project in October 2018.

The band has maintained that the "accommodations" included with the environmental approval are insufficient. Earlier this month it renewed its call for the Ministry of Environment to come back to the table with a better deal.

Environment Minister Dustin Duncan gave no indication that is in the cards. He said the approval process is complete, and the First

battlefordsnow.com

James Smith Cree Nation member

Nation should engage with the project's new proponent, Rio Tinto Exploration Canada Inc.

Winston McLean, a consultant who has been speaking for the First Nation on issues related to the proposed Star-Orion South project, said he remains confident the province will change its tune and reopen discussions with the First Nation.

Accommodations under the approval process include reserving a portion of the forest for band members' use, community and environmental programs and a requirement that they be funded to the tune of $161,250 for each year of the mine's life.

While additional impact benefit agreements are typically signed between a community and a company once the decision to bring a project into production has been made, McLean said the province knows the First Nation is "talking about more than jobs."

Shaun Spelliscy, the managing director of the exploration company Gem Oil Inc. who staked claims in the Star kimberlite field later sold to the project's original proponent, Star Diamond Corp., said he doesn't "see anything but a win-win" should the mine be developed.

If it proceeds, the mine is expected to cost $1.4 billion to build, employ 700 people continuously over its 38-year life and generate billions of dollars in corporate and municipal taxes, as well as royalties.

UNIVERSITIES

Memorial scholarship remembers Sask geologist

Battlefords News-Optimist - NuVista Energy Ltd., established the Walker Neumann Memorial Award in memory of Walker Neumann, who passed away November 2018 in Calgary.

He was 34.

Walker Neumann, P. Geo., grew up in St. Walburg, Sask., where he attended both elementary school and high

Walker Neumann, P. Geo.

school. He had a passion for the energy industry in which he, his father Dale and his grandfather all worked. This passion led him to pursue his Bachelor of Science in Geology at the University of Saskatchewan.

Neumann joined NuVista Energy in 2012 as a geologist after a successful start to his career with Talisman Energy Inc., which he had joined following graduation.

He was passionately interested in all things geology and this passion was infectious. Two of NuVista Energy's favourite memories are of Neumann wearing a lab-coat expounding the "Joys of Rock" while explaining what a piece of rock core revealed and cracking a special single malt with his team after overseeing the drilling of a particularly successful well.

The Walker Neumann Memorial Award in Geology has been established with the University of Saskatchewan by NuVista Energy Ltd.

Event introduces students to engineering

University of Regina - Engineering is complex and careers can unfold in surprising ways. It's not as direct as being an accountant, nurse, teacher, doctor, plumber or electrician.

Two students with the same degree can end up in very different careers. What is common is curiosity and the desire to create new solutions for some of society's pressing problems.

What is Engineering? is a long-standing event hosted by both the University of Regina and the University of Saskatchewan and is sponsored by the Association of Professional Engineers and Geoscientists of Saskatchewan (APEGS).

With each university offering different engineering programs and degrees they work together to present

engineering to high school students throughout the province, ensuring prospective students are aware of all of the options available. This ensures prospective students make the best-informed decisions.

"The reason we have been hosting this event for so many years is to educate young people and their parents about the profession of engineering," explains Dr. David deMontigny, P.Eng., U of R Associate Dean (Academic), Engineering.

At this year's *What is Engineering*? event, U of R engineering students volunteered to be guides for prospective students and led them around the lab sessions and presentations. It provided prospective students with the opportunity to talk with current students about engineering and the U of R.

U of S, Polytech sign agreement

University of Saskatchewan - The University of Saskatchewan and Saskatchewan Polytechnic signed an agreement that enables graduates of the Saskatchewan Polytech Mining Engineering Technology diploma program to transfer into the Bachelor of Science in Engineering – Geological Engineering program at U of S.

This means students can graduate with both a Sask Polytech diploma and a U of S degree after only five years of study.

The Sask Polytech School of Mining, Energy and Manufacturing and the U of S College of Engineering are dedicated to providing mining engineering students with a top-quality, Saskatchewan-based education.

Students must meet U of S admission requirements to transfer into the four-year Bachelor of Science in Engineering degree.

This partnership is a one-year pilot that will benefit students pursuing a mining career in Saskatchewan. It equips mining engineering students with flexible education options and provides employers with skilled employees ready to support the province's mining industry.

Remembering victims 30 years later

University of Saskatchewan - The vibrant lives of 14 young women - and all the potential they held - were lost 30 years ago during the École Polytechnique massacre in Montreal. Twelve of the 14 who died were engineering students. On Dec. 6 each year, the victims are mourned.

A new national initiative spearheaded by Mary Wells, dean of the College of Engineering and Physical Sciences at the University of Guelph, and Suzanne Kresta, dean of the College of Engineering at the University of Saskatchewan, will honour those victims in a powerful way this year.

YouTube

Their new online project celebrates women who studied engineering three decades ago and have thrived in the profession.

Many engineering students who were contemporaries of those who died went on to fulfill their potential despite the grief and trauma they experienced from the appalling event, Wells said. They are examples of courage, resilience and strength, she added, and it is important to celebrate their achievements.

As chair of the public policy committee of Engineering Deans Canada, she saw a need for a special commemoration to mark the 30th anniversary of the massacre.

Wells and Kresta initiated "30 Years Later," an awareness campaign that highlights the accomplishments of 30 women who attended Canadian engineering schools around the time of the massacre.

Despite being deeply affected by the tragedy, each grad pursued an engineering career.

The fact that women were targeted by the anti-feminist gunman on Dec. 6, 1989, traumatized women engineering students across the country. For Wells and Kresta, both of whom studied engineering in the 1980s, the tragedy instilled not only deep sorrow but also a profound sense of responsibility.

The profiles of the 30 engineers – including Nathalie Provost, who was injured in the shooting – went live on Dec. 4 at www.30yearslater.ca and in the French language at www.30ansplustard.ca. The permanent websites were designed and built by Engineers Canada, the national organization of engineering regulators.

Tower plaza named after engineering prof

Saskatoon StarPhoenix – Saskatchewan's largest city is set to grab the bragging rights for having the province's tallest building from the provincial capitol.

The tower rising from the ground on Parcel Y at River Landing in Saskatoon is expected to reach 18 storeys and 88 metres, eclipsing the 84.5-metre, 20-storey Mosaic Potash Tower in downtown Regina.

Nutrien Tower is expected to be complete in the fall of 2021.

The final office tower is part of a $300-million megaproject that includes a 20-storey condominium tower, a 15-storey Alt Hotel and a 13-storey office tower, all of which are completed.

The public plaza that is being built among the towers is scheduled to be completed in July, weather permitting.

The plaza will be named for Victory Majors founder Karim Nasser, P. Eng., a former University of Saskatchewan engineering professor who grew up in Lebanon. Nasser helped rescue the Parcel Y project when a deal with city hall to purchase the land was set to expire in November 2010.

ENVIRONMENT

Increase expected in wind power generation

CBC Saskatchewan - The national energy regulator thinks the amount of electricity generated by wind turbines will make up a significantly larger part of Saskatchewan's power mix in the future.

The Canada Energy Regulator released a long-term forecast on energy in the country and among its findings, the regulator predicts a massive spike in wind power generation by 2040.

According to SaskPower, wind power currently makes up about five per cent of the total on the electrical grid, with six facilities across southern Saskatchewan.

The report estimates Saskatchewan wind power generation will increase by 15 times by 2040, from the current load of 542 gigawatt hours (GWh) to an estimated 8,193 by 2040.

In January, the province signed a deal that would close the coal-fired Boundary Dam Unit 4 power station by the end of 2021 and Boundary Dam Unit 5 at the end of 2024.

Boundary Dam 3 can run beyond 2030, due to its use of carbon capture and sequestration technology.

The regulator predicts demand for electricity will continue to rise in Saskatchewan. Power usage is expected to grow by 16 per cent by 2040.

RESEARCH

Strategic metals on horizon

Saskatoon StarPhoenix - Mike Crabtree hopes almost a decade of research and development has laid the groundwork for an entirely new industry in Saskatchewan, one he and others believe will only become more important to a changing global economy.

Saskatchewan Research Council scientists have been quietly looking into more efficient and sustainable ways to produce and refine "strategic metals," a group that includes not only the 17 rare earth elements but also lithium.

Crabtree said technology is laboratory-proven and on the verge of commercialization, likely through one or more private-sector partners.

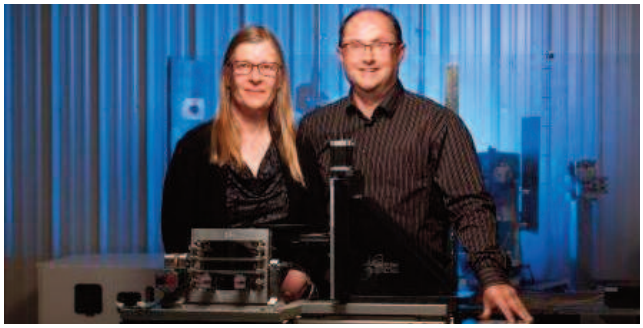
"What does the future look like? The future is about rare earth elements (and) lithium," said Crabtree, President and CEO at SRC, who obtained a Master's degree in petroleum engineering from the University Northumbria at Newcastle.

"Consumption will just skyrocket," he said of the metals, which are used not only to produce hand-held electronic devices such as cellphones, electric car batteries and motors, but also by various countries' defence industries.

Over the next two years, SRC is looking to spend about $35 million to build a pair of pilot plants, one for extracting lithium from various brines and the other for extracting and then separating rare earth elements from ore, including uranium tailings.

The proposed lithium plant would use "ionic sieves" to concentrate lithium in brines, either found deep underground or produced as a byproduct of the petroleum industry, to the point where it can be economically precipitated out.

Sask firm built on creativity, innovation



Sheila and Jim Boire, P.Eng.

The National Post - Don't let its name fool you. Saskatoon's RMD Engineering Inc. is a manufacturing firm, and one of the province's leading manufacturers at that.

"We also do engineering, but the engineering we do is mostly for ourselves and our own products that we manufacture," says engineer Jim Boire, P. Eng and president and founder of RMD Engineering. "It's really very secondary to what we do."

And just what does the firm of 75 employees do? Well, the RMD team works with clients in the manufacturing, science and research, industrial automation, mining, energy and military/defence fields.

Its clients are certainly diverse. They typically all have a need for a manufactured solution that RMD custom builds. Take its recent work for a leading agricultural firm that produces hemp.

"We've done a lot of development and manufacturing to accommodate the big void of technology that was there when ag companies started growing hemp on an industrial level just a few years ago."

Boire says these new producers — looking to capitalize on the growing market for cannabidiol (CBD), which is abundant in hemp — needed new equipment to grow, harvest and process the commodity at scale.

Working closely with clients, RMD helps them define challenges, develop a solution and then manufactures the necessary equipment at its 60,000-square-foot-plus manufacturing facility.

Saskatchewan manufacturing firms account for more than six per cent of the province's gross domestic product. With shipments of almost $18 billion annually, the sector has grown by nearly 60 per cent in the past decade.

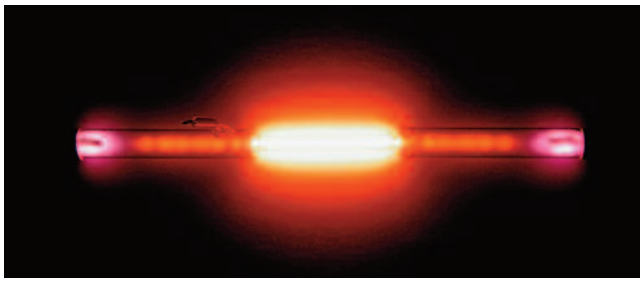
In part, that's due to a business-friendly regulatory climate that includes a corporate tax rate as low as 10 per cent, the lowest in the nation.

Furthermore, the provincial government has created a suite of tax incentives, including the Saskatchewan Commercial Innovation Incentive, as well as tax credits for companies that purchase equipment and grants to help train workers.

Moreover, the province's manufacturing sector employs more than 28,000 people, cutting across rural and urban communities, and serves the agriculture, oil and gas, mining and technology sectors.

OIL AND GAS

Helium drilling could aid struggling oilpatch



The Canadian Press - A veteran of Canada's ailing oilpatch is hoping a new product drawn from deep under Saskatchewan grain fields will provide a natural resource boom for Western Canada.

Helium, the second most plentiful element in the universe, is in short supply on Earth.

Demand for the gas once used mainly for military, weather and party balloons has been steadily rising, creating shortages and spiking prices in recent years.

Helium's unique ability to remain a liquid at extremely low temperatures makes it the cooling agent of choice for superconducting magnets in research and medicine (including MRIs).

It's also essential in rocketry and plasma welding.

"The environment is ripe for a resurgence of the industry in Saskatchewan, which produced helium from wells for about a decade 50 years ago before foundering due to slumping prices", said Melinda Yurkowski P.Geo., assistant chief geologist for the Saskatchewan Geological Survey.

"It's still a lot of rank exploration right now," she said, adding no one knows how much helium — produced by the decay of radioactive uranium and thorium — the province contains.

North American Helium is the most active of the handful of companies that have staked out a total of 1.7 million hectares of helium leases and permits in Saskatchewan.

It has drilled 13 new helium wells in southwestern Saskatchewan, with 11 considered commercially viable, and has tentative plans to open a plant to process gas from a single well by mid-2020.

Calendar Of Events

CIM Saskatoon Branch Uranium Night
February 20, 2020, Saskatoon, SK

PDAC: The World's Premier Mineral Exploration & Mining Convention
March 1 – 4, 2020, Toronto, ON
https://www.pdac.ca/convention

Spring Professional Development Days
March 5 – 6, 2020, Yorkton, SK
https://www.apegs.ca

PSMJ Proposals Bootcamp
March 11 – 12, 2020, Saskatoon, SK
https://www.acec-sk.ca/events/

SustainTech 2020
March 19, 2020, Saskatoon, SK
https://www.seima.sk.ca/

CIM Saskatoon Branch Industry Collaboration Night
March 19, 2020, Saskatoon, SK
https://www.cim.org/subsites/branches/saskatoon/

Agricultural Water Management Program – WSA
March 25 – 26, 2020, Saskatoon, SK
https://www.wsask.ca

Law & Ethics Seminar
April 17 – 18, 2020, Saskatoon, SK
https://www.apegs.ca/Portal/Pages/Professional-Practice-Exam

CIM Saskatoon Branch Social Networking Evening
April 23, 2020, Saskatoon, SK
https://www.cim.org/subsites/branches/saskatoon/

Get to the Point! Technical Writing Course
April 29 – 30, 2020, Saskatoon, SK
www.apegs.ca

90th Annual Meeting and Professional Development Conference
April 30 – May 2, 2020, Saskatoon, SK
https://www.apegs.ca

Uranium 2020
May 10 – 13, 2020, Saskatoon, SK
https://u2020.metsoc.org/

GeoConvention 2020
May 11 – 13, 2020, Calgary, AB
https://www.geoconvention.com/

2020 CCWESTT Biennial Conference
May 21 – 23, 2020, Winnipeg, MN
http://www.ccwestt.org/conference

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Attending conferences also counts as credits under the Informal Activity category.

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