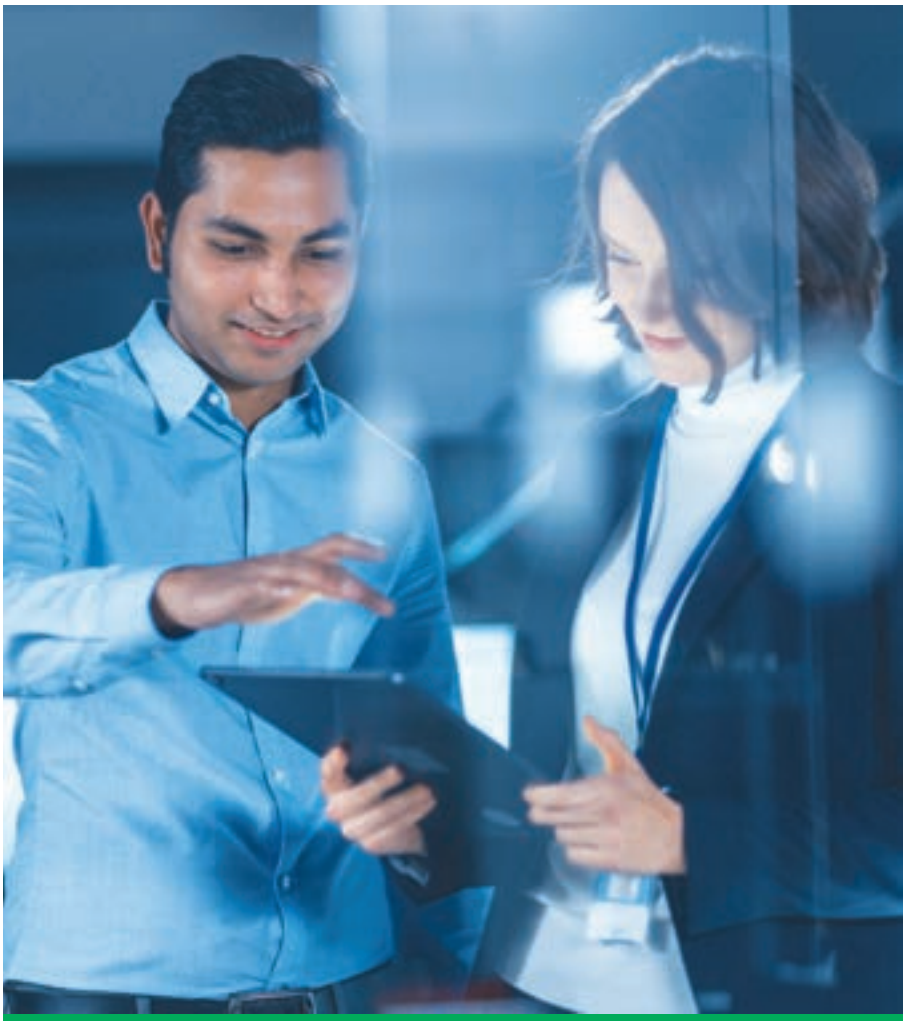
APEGS
*Association of Professional Engineers & Geoscientists of Saskatchewan*

# THE PROFESSIONAL EDGE

ISSUE 191 • MARCH/APRIL 2021

## COVID-19: One Year Later



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**COViD-19: One Year later**

In issue 190 of *The Professional Edge*, the University of Saskatchewan College of Agriculture and Bioresources was incorrectly named in the article titled 'PAMI researching how crops affected by pesticide drift'. We apologize for any confusion.

# President's Message

**Andrew R. Lockwood, P.Eng., FEC**

I sit here at my kitchen table penning my final president's message. I'm excited for the peaceful transfer of power in May to Kristen Darr, P.Geo.

Our Association has gone through a lot over the past year, with our members rising to the challenge. This issue of *The Professional Edge* highlights some of these amazing pivots, including RMD Engineering and its scratch development and certification of a ventilator and Sasktel handling the massive influx of data consumption. You may be reading this thinking to yourself, "How can I help prevent another COVID-19 pandemic?" Well, the completely unsubstantiated answer is to vote in the upcoming APEGS elections.*

We have a great slate of candidates (except for the past-president; he is "sus") that will bring a diverse perspective to our Council.

This perspective will become even more important over the next year as Council continues to develop feasibility plans and make significant changes to the Association as a part of our multi-year Governance Change project.

Council has been supported by almost every volunteer and staff member during the review and debate of more than 30 significant changes, but I would like to take a moment to give a special thanks to Stormy Holmes, P.Eng, for her chairing the task group on the changes. She personally gave the Association the first kick in the pants to get the ball rolling. We were lucky she did.

By the end of this project, we will have modernized APEGS with better public representation, better governance practices, while retaining the valuable volunteer-based structure that is the envy of many other professional regulators.

Outcomes of the Governance Change project need to be ratified by our license holders, so everyone should consider attending this year's upcoming virtual Annual Meeting on Saturday, May 1st. It is an exceptionally important meeting for the health of the Association, with several of our core bylaws (council size and composition among them) being ratified.

As this issue has shown, APEGS volunteers, members and staff display the patience, flexibility and innovation our professions are known for. This makes me infinitely proud to represent you as your president.

My service to the profession absolutely marks as a high point in my working career. I wish all the best to everyone and may the upcoming year bring great changes to our province and association.

* I promise I will not incite any insurrections. Zero impeachments for me!

# We Can Do This

## Saskatoon's RMD Engineering is the first self-funded private company in Canada to get a ventilator into testing

BY MARTIN CHARLTON COMMUNICATIONS

Unprecedented adversities experienced over the past year have revealed in people true characteristics that may have surfaced for the first time.

At RMD Engineering Inc., those characteristics nearly moved Jim Boire, P.Eng., to tears.

He and a team of approximately 35 designed and built from scratch an emergency use ventilator (EUV-SK1). One Health Medical Technologies, a subsidiary of RMD, recently received approval from Health Canada for its in-house designed and manufactured ventilator.

It comes as a major assist to a healthcare industry that was in desperate need of this particular medical device.

"It almost makes you cry when you stop to think about what everyone was willing to give to this project," said Boire, the primary owner of Saskatoon-based RMD Engineering.

### The pandemic takes hold

COVID-19 was wreaking havoc in North America. People infected with the virus were filling up hospitals, businesses were being forced to close and international travel slowed significantly.

Boire received a text message in mid-March 2020 from his daughter Rebecca Erker, a nurse working in the intensive care unit at Saskatoon's Royal University Hospital. The text explained the projected infection rate and potential shortages of equipment and staff and asked everyone to do their part to push back the curve.

So Boire and his team went to work on the design of a ventilator.

**RMD Engineering is the only self-funded private company to make emergency use ventilators. It was the first company in Canada to get a physical device into testing. Photo credit: RMD Engineering**

"You always begin a project with the end in mind. This was no different, except for the fact that the Friday before the work started, no one on our team knew what a ventilator was or how it operated," he said.

"It was probably the best thing that could happen to a company in the middle of a pandemic and after everyone cancelled their orders. It really was a good way to bring a team together. We had the mentality of 'We can do this, so we have to do it'."

– JIM BOIRE, P.ENG., PRIMARY OWNER OF RMD ENGINEERING

Communication amongst the team was critical and likely the most important tool. Team members met twice a day for about 15 minutes each time to provide updates on progress. Because most members of the team were subject matter experts in different areas, most were machining prototypes or building test boards or programming for much of the days.

Boire said there was about a five-day stretch where they produced a new prototype each day and then had a team test it and make adjustments.

The process and the project itself were unique to RMD Engineering.

"As a custom design and build engineering company, we are able to manufacture a lot of things in house, but because of all of the material hoarding that went on in the early days of the pandemic, we had to build a lot of components ourselves," Boire explained. "And then there was just the added stress of COVID-19 …"

## RMD goes to work

Everyone was all in almost immediately. Concerns of becoming infected with the virus became secondary to the project.

"Not one person who was a part of this process ever stopped to ask what was in it for them. The world needed help. Everyone believed that it was a part of our job to help."

– JIM BOIRE, P.ENG.

"You have never seen so many people so focused."

Saskatchewan's charm played a role in the process as well. Examples of the tight-knit community were presented when special guests visited the team.

**During the early stages of the design process of the ventilator, RMD team members produced a prototype daily for a five-day stretch. Photo credit: RMD Engineering**

A respiratory therapist, who is a close friend of one of RMD's owners, stopped by on weekends to provide assistance and to answer any questions from staff.

RMD's engineering manager's uncle who recently retired was the lead in all ventilator maintenance for the SHA. He also paid frequent visits to offer support and share technical knowledge.

A project manager who instructs project management professional courses for the Edwards School of Business was contracted to tutor the team members. He literally camped at the RMD shop in his camping trailer. He set up inside the building to manage the COVID risks and communications of the team.

A human resources expert with 25 years experience in labour relations, who met Boire while teaching an executive leadership program from Edwards School of Business at the University of Saskatchewan (USask), also was contracted to help monitor how stress may be affecting RMD staff and their mental health.

As the project moved forward, different people from various colleges at USask shared expertise in codes and standards, applied research and technical writing for manuals and training videos.

## Collaboration was key

The overall project included several moving parts and required expansive collaboration from various disciplines, departments and organizations.

USask College of Engineering Dean Suzanne Kresta, P.Eng., FEC, visited RMD late one night after the first prototype was ready. Minutes after meeting the team and seeing the work being done and the process being followed, Kresta phoned Preston Smith, the Dean of USask College of Medicine, to validate that what was happening was real and that it had potential.

"Imagine our excitement after we've created this … and then it dawns on you that you have to convince a respirologist and the head of anesthesiology for the province that in two days we figured out what a ventilator is and made something that could turn into something that could save someone's life," Boire said.

After initial visits from Kresta and communications with Smith, the Saskatchewan Health Authority and USask College of Medicine professor Dr. Mateen Raazi, who is also the SHA head of anesthesiology, collaborated to bring in respiratory therapists and clinicians to test the machine and provide feedback.

As well, Dr. Julia Montgomery, a respiratory expert with Western College of Veterinary Medicine, assisted with writing the ventilator's operation manual and training video. She also helped test the machine function.

USask's College of Law professor Patricia Farnese provided support on the regulatory work on standards for medical devices related to the Health Canada submission.

USask Respiratory Research Centre members took part in writing the ventilator training manual.

Six weeks later, an application to Health Canada was submitted.

> "This initiative exemplifies the spirit of collaboration and entrepreneurship we're so proud of in our province."
>
> - SASKATCHEWAN HEALTH MINISTER PAUL MERRIMAN

"Our government fully supports this work and we are pleased that residents in Saskatchewan and across the country will have access to this equipment if they need it."

## A finished product

RMD was required to submit its prototype for third-party testing. It was evaluated by a testing agency in the U.S.

According to Boire, during the evaluation, officials there said the quality of the device and how it ranks in the testing puts it at mainstream manufacturing quality.

To date, RMD Engineering is the only self-funded private company to make ventilators. It was the first one in Canada to get a physical device into testing.

"The SHA is grateful for the dedication and work that RMD Engineering has invested in creating a Saskatchewan-made solution to support the needs of patients for ventilator support as the COVID-19 pandemic continues," said Lori Garchinski, the SHA's executive director of provincial programs, tertiary care.

"Enhancing our ventilator capacity allows for frontline teams to balance the needs of their patients with the appropriate available equipment."

RMD Engineering was issued its authorization for sale by Health Canada on Nov. 25, 2020. The SHA has subsequently purchased 100 units for use in Saskatchewan.

Boire is proud of the work his team accomplished. He said it was the relationships that developed over the course of this unique process that he'll remember most.

"This project turned everyone into a rock star," he said. "It was a realization that I have the right team in place."

"The only claim to fame I get out of any of this is that I built this team. The team thrived as a unit. It is the most satisfying thing to see that kind of effort, that kind of respect and implicit trust that you're doing the right thing."

# Rising to the COVID-19 Challenge

## SaskTel's engineers step up to handle increased demand placed on networks

**BY MARTIN CHARLTON COMMUNICATIONS**

Change. It's another C-word that has been prevalent over the past year. COVID-19 has dominated the headlines and forced almost everyone to adapt, adjust and change well-established routines.

Because people were asked to work from home, where possible, to help prevent the spread of the coronavirus, the frequency in which people access mobile electronic devices shifted.

Televisions were used at abnormal hours of the day. And because of physical distancing guidelines and a near shutdown of national and international travel, Zoom meetings and phone calls, especially long-distance ones, took the place of in-person conversations.

This spike in usage placed an inordinate amount of pressure on SaskTel's networks.

The province's largest wireline and wireless communications company handles approximately 1.35 million customer connections, all of which rely on SaskTel's networks to perform as if it was business as usual.

For the most part, it was.

"The position we were in with our network as we entered the pandemic set us up very well with the investments we've made to get the broadband infrastructure into place to handle those types demands that came into the network."

- **CHAD OLSON, P.ENG., DIRECTOR OF TECHNOLOGY (CORE NETWORK) AT SASKTEL.**

**SaskTel's investment in fibre network created a higher ceiling for user capacity across the province. No major infrastructure additions were needed. Photo credit: SaskTel**

"While it was a challenge, it was a challenge that we were able to step up and meet."

Olson didn't want to minimize the effort that occurred in the background in terms of the traffic engineering and optimization efforts to ensure the capacity was in place to meet the demand.

The technology division he is a part of is accountable for the planning, design, implementation and support of the network and the overall architecture. Of the approximately 280 employees in this division, there are close to 80 engineers.

Olson also said the design and inherent quality of the network positioned SaskTel in a place where it could handle the increased usage and prevent significant delays.

### Numbers tell a story

SaskTel's networks experienced change in March 2020, shortly after Saskatchewan recorded its first positive COVID-19 case and self-quarantine measures came into effect. Working and learning from home became the norm for many, which created a spike in usage.

"We certainly saw an increase in traffic and demands placed on the networks," Olson said.

Examples of higher demand on networks include:

- A 40-per-cent increase in wireless voice service on LTE and UMTS networks.
- A 40-per-cent increase in data on the wireless network for LTE downloads and uploads.
- On the fusion service (fixed wireless service), there was a 65-per-cent increase in download data and a 95-per-cent increase in upload data.
- maxTV usage jumped 40 per cent.
- Internet services experienced a 30-per-cent increase in provincial data traffic; national traffic links rose nearly 50 per cent.
- There was a 100-per-cent spike in long-distance calls and a 400-per-cent jump in toll-free calling.

> "As people initially changed their behaviours, it drove pretty significant changes."
>
> **– CHAD OLSON, P.ENG.**

With summer's arrival, more people put down their electronics and moved their entertainment needs outdoors. Olson said that impacted data traffic patterns and how people were using the networks.

Eventually, he said data usage decreased or levelled off. However, when winter weather set in, the data usage started to climb again.

"The big thing was the change in traffic patterns, as people's behaviours changed," he said. "Areas where we would normally see high network traffic utilization like in the downtown cores during weekdays, we saw major drops in those areas and on those networks."

"Areas that wouldn't normally have high traffic, like suburban neighbourhoods, we saw an increase. Overall, net traffic did grow. But on the aggregate whole, we saw more of a shift in terms of where the data and traffic were coming from."

*SaskTel*


**Approximately 80 engineers from SaskTel's technology division worked in unison to ensure customers' needs were met during the COVID-19-induced shutdown. Photo credit: SaskTel**

## Weathering the storm

The pandemic certainly drove a significant spike in usage, particularly in the early days in March and April. SaskTel's network and the plans and designs in place to accommodate growth provided enough insulation to handle that spike.

Olson pointed to SaskTel's extensive fibre network, which has a higher ceiling for capacity, across the province.

In 2019-20, SaskTel invested $75 million in its fibre FTTx program. FTTx is a key component in SaskTel's strategy to provide the high bandwidth customers demand.

"That fibre network across the province set us up very well," Olson said. "Because of the quality of network infrastructure going into the homes and businesses, it set us up very well to handle the growth through software changes, licensing, minor hardware adds. We didn't have to do any major infrastructure additions or network redesigns."

On the wireless network side, SaskTel boasts 4G LTE across the province. LTE provides higher broadband speeds and is a more efficient utilization of network resources. It allowed the company to leverage the capabilities of those technologies and make changes through engineering efforts and software rather than having to make physical changes on towers.

Monitoring the performance and capacity of the network and identifying what changes were required certainly was a primary focus for Olson and his staff. Parameter changes were made to impact traffic flows; making minor adjustments like tilting antennas to optimize the traffic that is going through.

For capacity in the IP core networks, more links were added where required, along with increasing link speeds (increasing from 10 gigabits per second to 100 gigabit per second).

## All hands on deck

The rate at which things escalated with the pandemic was mirrored by the response from Olson and his staff. They had to react quickly to the spike in usage.

"We had to get in and monitor the network capacity and its performance and ensure our design and service objectives were still being met," he said. "We were analyzing the network data and identifying trends and changes to where the traffic was originating and trying to get in front and forecast how these changes were going to impact the future needs. That was pretty key."

"And they have to pull together all of that very quickly and react and put it into place. I'm really proud of our response in that we were able to deliver on a lot of these pretty complex services and changes in a very rapid timeframe."

"The engineers and technical staff that plan, design and implement and support our networks, the fact we were able to accommodate such a large spike in such a short timeframe is a testament to the quality of people we have working on the network and their expertise."

**– CHAD OLSON, P.ENG**

# A Change in Business Routines

## COVID-19 led to more enhanced health and safety measures

BY MARTIN CHARLTON COMMUNICATIONS

The COVID-19 pandemic altered traditional means of doing business, for those who are fortunate enough to still go to work.

Langenburg Redi-Mix, the road construction company that handled the Highway 39 revitalization project in 2020, experienced its share of health risks and challenges over the past several months. Thankfully, all crew members remained healthy and symptom-free for the 2020 working season.

That's a testament to the company's approach to health and safety.

"It definitely was a challenge … We did it successfully," said Kyle Rivett, P. Eng., project manager with the Coco Group, the company overseeing operations. "For that to happen, I think everybody had to be on board with what we were doing. We had to plan ahead for almost everything we were doing … and everybody worked safely."

### Adopting new routines

Road crews routinely were greeted with new work safety protocols which required several updates to safety documentation. Staff needed to be kept up to date on the changes to things like making a note of which visitors were on job sites and the time of day they were present.

As well, more portable washrooms and hand-washing stations were added to job sites.

These changes didn't have an effect on the road construction efforts.

However, the behind-the-scenes efforts like internal and external communications took on a new approach.

"We're a very personable company," Rivett said. "Our staff likes to talk face to face with business owners, reeves and administrators about upcoming work that may affect them. But we had to change those in-person meetings to phone calls and emails. It was more virtual correspondence, which sometimes isn't as efficient."

Communication with staff also had a different look.

"We had to address how we did our morning safety meetings," Rivett said.

> "We couldn't have 100 people standing around in a circle in the mornings. Some people were listening in through radio and we had smaller groups and more open spaces for meetings. We definitely had to change how we relayed information."
>
> – KYLE RIVETT, P.ENG, PROJECT MANAGER FOR COCO GROUP

### 2020 anything but normal

Allan Goldstone, safety director with the Heavy Construction Safety Association of Saskatchewan, said any hints of normalcy in this industry are far and few between this year.

**Covid-19 meant routines changed and safety became a bigger focus, especially for those in the construction industry.**

**Wearing personal protective equipment and frequent cleaning and sanitizing of machinery became mandatory.**

He and his safety training staff normally train approximately 2,000 people during the winter months. This year, however, has been different thanks to the coronavirus.

"In the 20-plus years I have been with the Safety Association, I've never seen it as busy as it was during that first month of COVID-19," Goldstone said. "With all of the new rules and regulations that were being introduced, contractors didn't have anything in place that met those requirements. No one did."

So, instead of teaching and auditing, Goldstone and his team created documents and templates for contractors to corroborate health checks for daily and weekly toolbox meetings.

Goldstone said safety training during the summer months, which they did in 2020, is rare. But it's the reality they're faced with during these times of alternative measures.

A big reason why training sessions were still being conducted into June and July was because class sizes had been significantly reduced in order to meet proper physical distancing.

Classrooms shrunk from holding between 20 to 30 students to eight at maximum. As a result, what would normally take one day of training turned into three days of training.

"Unless we were going to rent a ballroom, we were stuck with training eight people at a time because of social distancing guidelines," Goldstone said. "Either we rented a bigger space to do the bigger classes, which was going to add costs for our association, or we stayed with the classroom we already had and were already paying for and held smaller classes."

The actual training was altered as well. Goldstone said they were limited to the training they could do because some classes were hands-on.

For example, a confined-space rescue class normally sees at least four people in a group in close contact. The confined-space entry portion of the class remained the same because it was theory only. But the confined-space rescue itself, with one person in a manhole and at least three others peering into the manhole, couldn't be done.

## Thankful for technology

Where in-person training was limited, technology was expanded. Webinars, for the first time, were introduced into safety training classrooms.

Flag person training normally was conducted through in-class teaching. It was available online last year.

"One thing this pandemic has taught us is that we should be looking at all the course material that we have and trying to decide what can actually go online," Goldstone said. "This has forced us to embrace technology."

"We've never used a Zoom platform before. We had Microsoft Teams, but we've never really used it. It has helped us immensely because we're still able to communicate and collaborate as an association when we're working on a template."

## Temporary or permanent changes?

The spring and summer months last year, when many businesses across the province were closed, posed a challenge for hungry remote-working road crews. Where would they find their next meal?

Thankfully, rural restaurants stayed open and provided take-out meals for crews. It just required advanced notice to the kitchen staff.

Eating on the job site rather than indoors at a restaurant was a slight change of routine.

Rivett said his crews frequently staged their workdays according to a grocery store's new hours of operation. They made special arrangements so staff could leave early to pick up food.

Whether these new measures are temporary or become the new normal remains to be seen. Both Rivett and Gladstone and other contractors are taking the wait-and-see approach.

Nonetheless, these alternative means of doing business certainly are better than no business.

"We felt we had to find a way to help the contractors," Gladstone said. "If we could find a way to do things safely for ourselves and for the contractors, then we were going to do it. We made the decision to move forward and turn this pandemic into a somewhat normal situation."

# COVID-19: One Year Later

**BY MARTIN CHARLTON COMMUNICATIONS**

In the May/June 2020 issue of *The Professional Edge*, we talked with various community leaders to gain a better perspective on how they were combatting COVID-19. At the time, the virus was a relative unknown and responses from government, health services and businesses as a whole on how to best approach the pandemic was ever-changing.

In this issue, we checked in with a couple of those that were profiled in the aforementioned issue to see what they've learned over the past year on how to combat COVID-19.

## Buffalo Pound Water Treatment Facility

**RYAN JOHNSON, P.ENG., GENERAL MANAGER**

The year 2020 was unlike any we had dealt with in the past. As a critical service, the Buffalo Pound Water Treatment Corporation has been very appreciative of our dedicated staff who continued to perform their jobs with determination throughout.

We have also been very fortunate to maintain operations in the new norm without experiencing a single case of COVID-19 (as of Feb. 2021) among our employees or their immediate families.

We have experienced some difficulties in the supply of equipment or items required from suppliers, impacted by COVID-19, but we have had no issues with the supply of critical components or chemical to date.

Buffalo Pound Water Treatment Corporation employees take their responsibilities very seriously. We have all followed the Saskatchewan Health protocols as a minimum and, in many cases, we have been more restrictive.

We are back to operating at full staff, but we are doing many things differently now than in pre-COVID-19 times. Wearing masks in the plant is mandatory and frequent hand washing/sanitizing is also required.

Contractors are only allowed at the plant if their work is critical and if their safety protocols are approved. Visitors, tours, consultant meetings and sales calls have all been halted since mid-2020.

There is no risk of COVID-19 entering the potable water from our operations. Our largest risks are related to the protection and availability of our staff to operate and maintain the plant and the supply of our mission critical chemicals and materials.

As of Feb. 1, we have successfully mitigated these risks and are cautiously optimistic that we can continue operations with minimal issues throughout 2021.

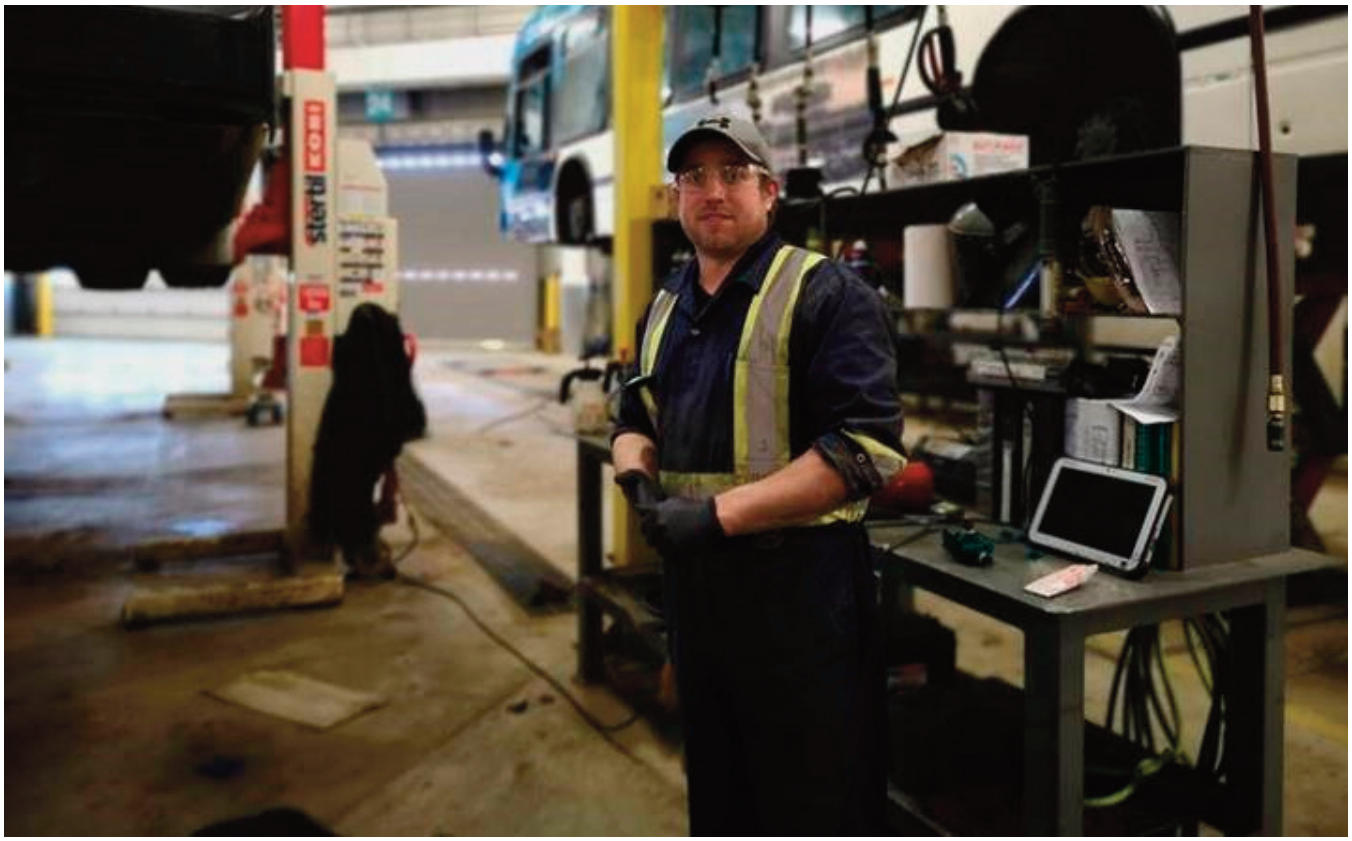
## Saskatchewan Health Authority

**DOUG CAMPBELL, P.ENG., DIRECTOR, STRATEGY AND INNOVATION**

It has been a hectic year in the Saskatchewan Health Authority. Through service slowdowns and surge planning in the spring to service resumption over the summer. Now, we're back into service slowdown, surge plan activation and vaccine delivery.

The new challenges keep coming.

**In the spring of 2020, the City of Saskatoon ensured that all public transit was properly sanitized to help combat the spread of Covid-19. Photo credit: City of Saskatoon**



That being said, there are some engineering and leadership principles that continue to serve me and my team well:

- Prioritize and execute: We can't focus on everything all the time and be successful. We pick the most important task, get it done well and then move to the next one.
- Be ready to change your plans at a moment's notice: I'm part of the team that is allocating vaccine dosages throughout the province. As shipment numbers continue to change, our plans need to change with them. Speed saves lives, so we can't wait for the perfect solution.
- Take time to connect: I've had the privilege of working with some of the best leaders in our organization. One of the traits they share is the desire to take care of their people.

They take the time to check in on how everyone on their team is doing and to ask how they can help better support each person. Good work can't happen unless you take care of your people.

## City of Saskatoon

- **JEFF JORGENSON, P.ENG., CITY MANAGER WITH CITY OF SASKATOON**

First, my sincere condolences to everyone who has lost loved ones this past year. It has been heartbreaking. On behalf of all City of Saskatoon staff, we are truly sorry for your loss.

The global pandemic had impacts that no one predicted. Some sectors of our economy have thrived, some have been decimated and many are somewhere in between.

Over the past year I've spoken with countless people in both private industry and public service and it is inspiring to see the resilience of Saskatchewan people.

We are very proud that our critical services continued to operate uninterrupted, in large part because our teams quickly adapted to alternate delivery methods. Every single job at the City changed in some way.

Although we started out a bit clumsy at some things, we kept talking, learning and changing. We figured out new and better ways of doing our work. Every single person working at the City of Saskatoon played an essential role in our COVID-19 response.

We ensure our value of Safety in All We Do is at the forefront of all our work. When the pandemic is finally behind us at some point, we will not be returning to normal at the City of Saskatoon. We've learned too much. Like so many other organizations, we will emerge stronger, wiser and better than ever at serving our citizens.

**City of Saskatoon employees from the transit division worked to keep public transit safe and clean for users during the pandemic. Photo credit: City of Saskatoon**

# Member Profile

This month *The Professional Edge* chats with Alexis Schur, P.Eng. Alexis is a process engineer with K+S Potash.

**Tell us about your personal background. Where are you from? Where did you attend university?**

I was born and raised in Lanigan, Sask. I completed high school in 2013 and went straight into engineering at the University of Saskatchewan. I obtained my bachelor's degree in chemical engineering in 2018.

After university, I worked at Crop Production Services in Drake, Sask. In August 2018, I got my job with K+S Potash Canada as a process engineer. For me, this was a dream come true. I was getting to work at a very new mine with many learning opportunities to further my career and I was working in the potash industry.

I moved to Regina Beach when I started my job.

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

I always had a strong interest in math and science and being an engineer seemed like a great career to utilize those skills. I also had a strong desire to work in the potash field and being an engineer at a potash mine was a career that really interested me.

I am also a very social person and I knew engineering would give me the option to use my math and science skills, but also allow me to have social contact working with others on a daily basis.

**Were there any engineers in the family who influenced you?**

I am the first one in my family to become an engineer. My parents encouraged me from a young age to become an engineer. They took me to Spectrum at the U of S so I could obtain information and gain a better understanding of the options I would have as an engineer.

My Dad did influence my interest in wanting to work in potash. My Dad was the warehouse supervisor at the Lanigan mine. Growing up, hearing about potash mining and it being such a dynamic part of our community, I decided I wanted a career in potash.

**Related to the industry, what would be your dream job?**

Honestly, right now I am in my dream job. I am challenged every day and always learning and growing as an engineer. I want to keep learning all areas of the process plant and maybe one day be a superintendent.

**What do you do for continuing professional development? Are you involved in any outreach programs?**

Being such a young engineer and having such a busy work schedule, most of my continuing professional development is done within my job. The past two years we have taken several training courses to learn new software to help us in our careers.

**What are your interests outside of work? What do you do for fun?**

Outside of work I like to spend my time outdoors - golfing, biking, walking and playing with my puppy. Since moving to Regina Beach, I have also taken up ice fishing and summer fishing.

### What is your favorite vacation spot?

I have two favourite vacation spots as I love the ocean and the desert. When going to the ocean, my favourite spot is Maui. It is such a beautiful place with a great culture. My favourite spot in the desert is Lake Havasu, Arizona. My parents are snowbirds and I go down and visit them every year.

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

My parents have been the greatest influence on my career and life. They supported me through all my schooling and were a huge support when I moved to start my career with K+S Potash Canada.

### Is there anything else that you would like to share?

For anyone thinking of going into the engineering field, don't be afraid of how hard everyone says it is. It is a challenging degree, but once you obtain your degree in engineering, the struggles you faced were worth it. They will only make you stronger and a more dedicated engineer.

## Transition to the National Professional Practice Exam

**As part of the qualification for registration as a professional member or an engineering or geoscience licensee, members are required to pass a professional practice exam on Canadian law, ethics and professionalism.**

In the past, APEGS has administered its own three-hour, closed-book examination. At its meeting on February 4, 2021, APEGS Council approved the use of the National Professional Practice Exam (NPPE) on an ongoing, permanent basis. The NPPE will now be consistent across most of the regulators in Canada, making the exam process transferable.

The APEGS Law and Ethics Seminar will continue to prepare our members for the exam. Because of COVID-19 restrictions, the spring 2021 seminar will be offered online for exam candidates. Staff will be notifying candidates currently registered for the 2021 spring or fall exam directly to inform them of the steps required to transition to the NPPE.

Further information can be found at apegs.ca under Apply / Professional Practice Exam. If you have any questions, send them to professional-practice-exam@apegs.ca.

# Gems Of Geoscience

Jodi Derkach, P.Geo., is a Senior Manager, Land and Resource with Nutrien Ltd.

My favourite rock is petrified wood. Petrified wood is ancient life crystalized in time. It's a window to the environment of the past and tells a magnificent story of life on Earth that no human was present to witness.

Petrified wood is a fossil. It forms when plant material is buried by sediment and protected from decay due to oxygen and organisms.

Groundwater rich in dissolved solids flows through the sediment and replaces the original plant material with silica, calcite, pyrite or another inorganic material such as opal. The result is a fossil of the original woody material that often exhibits preserved details of the bark, wood and cellular structures.

The photo accompanying this article was taken in Grasslands National Park in Saskatchewan at the end of a long, hot hike several years ago and shows in-situ petrified wood exposed by erosion.

It must be left exactly where it is for others to stumble upon and enjoy. Those who understand its significance will pause and think of a world that once existed on the ground immediately below their feet.

**Jodi Derkach found her petrified wood in Saskatchewan's Grasslands National Park.**

I think that's part of the beauty of it - it's the ancient form of present-day life that anyone can recognize and appreciate. The science behind it only enhances its beauty.

I believe, but have not confirmed, that my own collection of petrified wood is from the Cretaceous - a time when dinosaurs and other prehistoric creatures roamed the Earth. Truth is, I don't know much about my collection because I discovered it when I was quite young doing some gardening at my mom's house.

Under mulch and plants in a forgotten garden at the side of the house was a beautiful collection that I assume belonged to a previous owner. It is now in my own garden buried under a lot a snow. When the snow cover is gone, my kids really enjoy getting (and giving) fossil tours of our rock garden.

I would be remiss if I didn't mention potash as one of my favourite rocks. Potash is an economical mineral commodity that has afforded me a challenging and rewarding career and introduced me to a diversity of brilliant people.

I am passionate about the safe, responsible and sustainable development of our precious resources. My job as Senior Manager of Land and Resource at Nutrien Ltd., is a wonderful opportunity to work with our community, the government and industry experts to support that initiative.

# 2021 Council Election

**The Nominating Committee has nominated the individuals listed below and they have agreed to stand for election in the offices indicated. Group/District Councillors serve a three-year term. The term for members of the executive is one year.**

## Executive

| | |
|---|---|
| **President:** (one-year term) | Kristen Darr, P.Geo. / Deer Valley |
| **President-Elect:** (one-year term) | John Desjarlais, P.Eng. / Regina |
| **Vice-President** (one-year term) | Cory Belyk, P.Geo. / Corman Park<br>Greg Vogelsang, P.Geo., FGC / Regina |

## Councillors

| | |
|---|---|
| **Group II (Mechanical & Industrial)** (three-year term) | Ashok Thakkar, P.Eng., FEC / Saskatoon<br>Sebastian Walrond, P.Eng. / Regina |
| **Group V (Agriculture & Forestry)** (three-year term) | Kurtis Doney, P.Eng. / Regina<br>Carolyn Emperingham, P.Eng. / Swift Current |
| **Southeast District** (three-year term) | Bin Lu, P.Eng. / White City<br>Trent Nelson, P.Eng. / Weyburn |
| **Geoscience South District** (three-year term) | Gavin Jensen, P.Geo. / Regina<br>John Jesse, P.Geo. / Regina |
| **Members-in-Training** | Caileigh Bechman, Engineer-in-Training / Saskatoon<br>Noah Zanyk, Engineer-in-Training / Saskatoon |

# Governance Change

**Council met on February 5, 2021 to review the remaining feasibility plans. Council has now considered action for all 33 recommendations on governance change. A summary of council's February decisions can be found in the table on the next page.**

"I am exceptionally proud of the volunteers and staff who worked tirelessly to reach our first major governance change milestone by addressing all 33 recommendations."

- **PRESIDENT ANDREW LOCKWOOD, P.ENG., FEC**

To date, council has approved 24 of the recommendations and staff and committees have acted or are in the process of acting on those recommendations. Council will reconsider the final nine recommendations further to planned consultations, as outlined in each of their specific feasibility plans.

If you have any questions, refer to the January/February 2021 issue of *The Professional Edge* for answers about the project, or contact project director Tina Maki, P.Eng., Director of Special Projects at tmaki@apegs.ca, who will relay them to the steering group.

### What is this project about?

APEGS is reviewing its governance and regulatory frameworks and practices. The review focuses on 33 recommendations made by a consultant regarding:

- Council size and composition,
- Risk management,
- Public transparency,
- Management of sponsorships,
- Organizational structure,
- Roles of committees and staff,
- Training for committees,
- Relationship with constituent societies.

### Why is APEGS doing this project?

A growth in membership and changes in the regulatory environment make a review timely to modernize governance that focuses resources on activities aligned with enhancing regulatory effectiveness.

For more, refer to previous issues of *The Professional Edge* from May/Jun 2020 to Jan/Feb 2021.

**Steering Group**

Stormy Holmes, P.Eng., Past President (2019-2020)

Kristen Darr, P.Geo., President-Elect

John Desjarlais, P.Eng., Vice President

Nicholas Kaminski, P.Eng., Council Member

Peter Jackson, P.Eng., Past President (2012-2013)

**Staff Advisors**

Bob McDonald, P.Eng., Executive Director and Registrar

Shawna Argue, P.Eng., Director of Registration

**Project Director:**

Tina Maki, P.Eng., Director of Special Projects

**Consultants:**

T. Bakkeli Consultants Inc. and Lana Gray Leadership Services

## Summary of Council's February decisions

| Area | Decisions | Notes |
|---|---|---|
| **Council size and composition** | • Several bylaw amendments and additions were approved to capture the new requirements for the number of council members, council composition, nominations and elections. | • Refer to the article on page 22 for more on proposed bylaw amendments, which require a vote of the members at the annual meeting on May 1, 2021. |
| **Risk management** | • Enhance the rigour of risk management by expanding the Audit Committee's terms of reference to include assisting council, boards and committees with risk assessment. | • The name of the Audit Committee will be changed to the Audit and Risk Management Committee and risk management will be added to the terms of reference.<br>• The committee will engage a consultant to conduct an organization-wide risk assessment. |
| **Organizational structure** | • After the council elections in May, create a new Governance Board to focus on governance-related responsibilities and practices, including oversight for the Audit and Risk Management Committee and the Nominating Committee. | • The previous board of the same name, which focused on regulatory matters, was appropriately renamed the Regulatory Board, effective January 1, 2021. |
| **Sponsorships** | • Assign to council the responsibility for developing and monitoring a sponsorship policy. | • APEGS will determine a strategic direction for sponsorships that aligns with the objects of the association and draft a sponsorship policy, evaluation matrix and procedures for council's consideration. |
| **Volunteer Orientation** | • Reinstate required annual volunteer orientation training for new committee members and chairs, offer optional training for returning volunteers and formally add the responsibility for training volunteers on committee-specific responsibilities to staff. | |
| **Other** | • Create a task group focused on corporate regulation.<br>• Create a task group to assess improvements to the relationship with constituent societies and if there are any activities that the regulator should transfer to the constituent societies.<br>• Assess removing "sustain the professions" focus area from the APEGS value proposition.<br>• Maintain government relations processes while staff reviews its current practices and develops formal policies and programs for council's consideration. | |

# Proposed Bylaw changes

**The January/February 2021 issue of *The Professional Edge* noted proposed bylaw changes to APEGS' regulatory and administrative bylaws, which are outlined in the table below.**

Council unanimously passed the changes at its February 4, 2021 meeting. Members will vote on the changes at the annual meeting on May 1, 2021.

"I have been very involved with the project, seeing the details and the entire planning process for each recommendation to go to council for consideration," said Kristen Darr, P.Geo., President-Elect and member of the steering group for the governance change project.

Darr believes the changes will create a council that is well suited to regulate the professions and protect the public.

"A smaller council size will allow us to be better and more efficient at decision-making in the best interest of the public, since a reduction gives the public appointees a larger voice, which is important in self-regulation," said Darr.

When it comes to council composition, Darr noted updates are necessary.

"One of the electoral groups includes a ceramic engineer, which hasn't existed as a discipline in years," said Darr.

Peter J. Jackson P.Eng., FEC, FGC (Hon.), Past President (2011-2012) is the chair of the Nominating Criteria Task Group. The group is aiming to improve the transparency of the nominating process, refine the selection and vetting of potential council candidates and analyze the performance of the existing council to ensure that any gaps in knowledge or capability are addressed in the following round of elections.

"This is intended to equip council with the proper expertise to deal with specific issues that arise from time to time," said Jackson. "We're also working to ensure councillors get an opportunity to give feedback on their council experience as part of a continuous improvement plan for the nomination process."

| Area | Proposed changes | Rationale |
|---|---|---|
| Reduction in council members | • Adjust council size from 19 to 13 councillors.<br>• This includes 11 elected councillors and two public appointees, with a minimum of four professional engineers and two professional geoscientists, as *The Engineering and Geoscience Professions Act* requires.<br>• Phase in over three years through attrition to ensure minimal disruption. | • Increases the representation of public appointees (from 10.5 per cent to 15.4 per cent), which increases the public voice.<br>• Allows for more efficient decision-making and is in keeping with best practices in governance.<br>• Retains the ability for a tie-breaking vote, if needed. |
| Elimination of discipline and electoral district representation | • Replace the process of electing councillors based on discipline, geography or member-in-training status with councillors elected as members-at-large.<br>• Phase in over three years through attrition to ensure minimal disruption | • Eliminates any confusion that elected councillors represent their geographic district or discipline as per the position they were elected.<br>• Eliminates the need to update council positions as new disciplines/practice areas emerge. |
| Changes to council nomination process | • Allow the Nominating Committee to attract and vet candidates using criteria aimed at ensuring council is comprised of individuals with the knowledge, competency, character and diversity to regulate in the public interest. The criteria include:<br>  • a provision for members to self-apply to be considered for nomination to run for council, in addition to the Nominating Committee identifying potential candidates.<br>  • a process for candidates to be vetted in a consistent manner, which requires them to:<br>  • complete an application form.<br>  • be assessed against a competency matrix and a gap analysis of council.<br>  • if short-listed, take part in an interview process to select final candidates. | • Provides a more strategic nomination of council candidates to fill identified competency gaps on council, which will increase the quality of regulation and increase public confidence.<br>• Makes the evaluation of candidates more consistent and transparent.<br>• Provides anyone the opportunity to be vetted as a candidate for election. |

# No Fee Increase in the Forecast

**BY APEGS STAFF**

APEGS members should not experience a fee increase in the foreseeable future thanks to a continuing operating surplus resulting in unrestricted retained earnings.

An approximate 15-year period of sustained growth in Saskatchewan's engineering and geoscience community, coupled with an unforeseen global pandemic and a slight growth in membership are just a few contributing factors to a surplus for the 2020 fiscal year.

A deficit was budgeted for 2020, however, revenues and expenses were considerably lower than budgeted and health and safety guidelines implemented in response to the COVID-19 pandemic resulted in a surplus.

These restrictions significantly reduced expenses incurred for travel within and out of province to annual and national meetings and conferences.

The most recent fees increase was approved at the 2010 annual meeting and implemented for the 2011 year. This year will mark the 10th consecutive year without an increase. It is anticipated that stretch will continue for several years to come.

In the past, APEGS Council established a philosophy of attempting to balance its revenues and expenditures over approximately five-year periods. Surpluses were forecast in the early years of those cycles, with deficits expected in the latter years. This philosophy was endorsed by members who responded to a questionnaire on the APEGS website.

This endorsement allows Council to plan its activities several years in advance. If revenues are higher or expenses lower, the next increase can be delayed further into the future, such as the case this year.

This approach has a proven track record for the past 30-plus years.

In 1992, the annual fee for professional members increased from $150 to $225. The Association ran a surplus for the period of 1992-95, followed by deficits the following two years. The inclusion of geoscientists in 1997 resulted in the Association running modest surpluses for the period 1998-2000, followed by deficits in 2001-02.

In 2003, the annual fee increased from $225 to $300 based on a five-year projection. Growth in APEGS membership, as well as sustained growth in the provincial economy allowed APEGS to continue beyond a five-year period before the 2011 increase.

APEGS forecast a series of deficits leading up to the 2010 annual meeting resulting from an increase in operating costs, the need for a new database, an increased assessment from Engineers Canada for a major advertising campaign and a loss of revenues from the licence for permission to consult resulting from a changing regulatory environment.

A continual increase in the number of applications and membership has permitted APEGS to avoid deficits for the past 10 years.

Operating under deficit budgets may jeopardize the ability of APEGS to fulfill its mandate and to plan long-term. In addition, APEGS provides support through sponsorships which, in turn, provides the Association with promotional and community support and its members with professional development opportunities.

APEGS supports activities at both provincial universities through funding for students to participate in competitions and conferences. APEGS also provides grant funding to libraries at both universities. This allows borrowing privileges to APEGS members and assists in improving proficiency and competency of our members thanks to access to rare materials.

# Notes From APEGS Council

**The APEGS Council held an online meeting via Microsoft TEAMS on February 4-5, 2021. The meeting was attended by 19 of 19 Councillors and the Directors to Engineers Canada and Geoscientists Canada. Council will meet next on March 25-26, 2021 via Microsoft TEAMS.**

### Council received the following presentations and information items:

- The Communications Manager provided a status update on the 2021 Strategic Communications Plan.
- The APEGS Director to Engineers Canada provided a written report and a verbal update on the activities of the national organization.
- The APEGS Director to Geoscientists Canada provided a written report and verbal update on the activities of the national organization.
- The Director of Registration provided a report on the results of the 2019 CPD Assurance Reviews and the first round of the 2020 CPD Compliance Reviews.
- The Director of Registration provided an update on the plans for the online 2021 Annual Meeting and Professional Development Conference.

### Council passed motions as follows:

- Approving a budget for the engagement of an accounting consultant to assist with the redevelopment of the budgeting process.
- Appointing Mel Leu, P.Eng., FEC as the Chair of the Licensee Admissions Committee.
- Approving the process for Geoscientists-in-Training on required competencies in order to waive confirmatory exams.
- Approving a procedural change for approving recommendations on the consent agenda of the Academic Review Committee.
- Approving that APEGS sign onto the Memorandum of Understanding as a permanent participant in the National Professional Practice Exam.
- Approving that the Spring 2021 Law and Ethics Seminar be held online.
- Approving 62 new Life Members.
- Reappointing Trevor Chadwick, P.Eng., Rob Court, P.Eng. and Clare O'Dowd, P.Geo. to the Discipline Committee.
- Appointing Brad Cochrane, P.Eng. to the Discipline Committee.
- Approving 18 Regulatory and Administrative Bylaw changes.
- Appointing Stormy Holmes, P.Eng., FEC, FGC (Hon.) as the APEGS nominee to the Engineers Canada Board of Directors for a three-year term beginning after the May 2021 Engineers Canada Annual meeting.
- Supporting the proposed change to the CEAB Interpretative Statement on Licensure.
- Approving several feasibility plans and some associated recommendations resulting from the Governance Review project.
- Approving the following work completed by the Nominating Criteria Task Group: Nominating Committee Procedure and Council Applicant Evaluation Matrix.

### Council noted and received the following reports:

- Registrar's reports for November and December 2020.
- The unaudited financial statements for November and December 2020.
- Executive Committee minutes, board minutes and the reports from the committees and task groups, abridged Investigation Committee minutes, Discipline Committee minutes, Governance Change Steering Group minutes and Nominating Criteria Task Group minutes.

## UNDERSTANDING THE

# Investigation and Discipline Process

**BY APEGS STAFF**

It is the responsibility of the Investigation Committee to investigate the complaint, determine whether sufficient evidence exists to lay a charge and refer a complaint to the Discipline Committee to proceed to a discipline hearing.

Individuals or corporate entities registered and/or licensed with APEGS are required to comply with *The Engineering and Geoscience Professions Act*, regulatory bylaws and administrative bylaws. This includes engineers-in-training, geoscientists-in-training, professional engineers, professional geoscientists, engineering licensees, geoscience licensees and temporary licensees.

As part of its regulatory obligations, APEGS is required to investigate allegations of professional incompetence and professional misconduct in accordance with the Act.

Persons that believe that an engineer's or geoscientist's conduct constitutes professional incompetence or professional misconduct may make a complaint to APEGS. All complaints must relate to professional misconduct or professional incompetence as these are only matters that APEGS may investigate, as APEGS is not a substitute for the civil courts.

Complaints are managed through investigation and discipline processes as defined in the Act. The investigation process starts when APEGS receives a written complaint or when APEGS council requests consideration of a complaint.

It is the responsibility of the Investigation Committee to investigate the complaint, determine whether sufficient evidence exists to lay a charge and refer a complaint to the Discipline Committee to proceed to a discipline hearing.

If the Discipline Committee hears a complaint it may determine a finding of professional incompetence or professional misconduct and apply the appropriate order (penalty).

When the Investigation Committee believes the person under investigation may be guilty of a criminal offence, the committee may discontinue its investigation and will report its findings to the APEGS president and the Deputy Minister of Justice. A similar obligation exists for the Discipline Committee at the conclusion of a hearing.

*For more information on the investigation and discipline process or on submitting a written complaint, go to* ***www.apegs.ca*** *under Complaints & Discipline.*


# Continuing Professional Development

**The Continuing Professional Development (CPD) Program requires APEGS members to complete ongoing professional development activities 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. For more information visit the CPD menu at apegs.ca.**

## Featured Professional Development Opportunities

### 2021 Fall Professional Development Days

A variety of courses will be offered in the Fall of 2021. Stay tuned for more details.

The next topics for the Fall 2021 CTEL (Centre for Technical and Engineering Leadership) courses are tentatively scheduled to include:

- Effective Meeting Skills,
- Creating an Innovative Environment,
- Oral Presentations,
- Project Management Overview.

For additional professional development opportunities refer to the back cover of this magazine or visit apegs.ca.

### APEGS Volunteer Opportunity

The APEGS CPD Compliance Committee (CPDCC) is looking to increase its membership. The CPDCC is looking for members who:

- have audit or review experience,
- live in Saskatchewan (must be available for in-person meetings, when safe to do so),
- have time to commit to two- to three-hour meetings approximately every two months.

If interested, send an email to Jolene Arthur, Compliance Coordinator at jarthur@apegs.ca.

### Does Your Next Meeting Need an Ethics Topic?

Monthly ethics moments are available to APEGS members for use in meetings.

When an ethics moment is included in the minutes of a meeting, along with the start and end times of the ethics moment discussion, this time can count as part of the member's annual ethics requirement.

Email cpd@apegs.ca. to get this month's ethics moment.

### Online Ethics Module #3 Launches in April

The next installment of the free APEGS online ethics modules will be available for members in April 2021.

Our current ethics module topics are:

- Module 1 - Professionalism and Ethics,
- Module 2 - Conflict of Interest,
- Module 3 – Investigation and Discipline.

For more information and to access the module visit the CPD menu at apegs.ca.

### 2020 CPD – Are You Compliant?

Were you a member in 2020? Did you report your 2020 CPD to APEGS before January 31, 2021?

APEGS reminds members that it is a Regulatory requirement for all members* to report their CPD to APEGS annually. This includes licence waiver holders, retired members, members who live outside of Saskatchewan and members who report their CPD information to multiple jurisdictions.

There is strong support from Council for the Registrar to take action for non-compliance with the CPD reporting requirements for the 2020 reporting year. Depending on the severity of the non-compliance, this action could include an administrative suspension of a member's licence.

In 2019, APEGS had 88 per cent compliance with our CPD Program. This was considered a learning year. Let's do better this year and bring our compliance rate up to 100 per cent.

*Excludes Life Members and Temporary Licensees

# 2021

# Annual Meeting

## and Professional Development Conference

*Regulating the professions. Protecting the public.*

## Online

April 27 – May 1, 2021

### Professional Development Streams Plenary Keynote Speakers

April 27 - April 29, 2021

### Online Awards Ceremony

Friday, April 30, 2021

### 91st Annual Meeting

Saturday, May 1, 2021

Registration is open April 2021

www.apegs.ca

# Professional Development Opportunities

Attendance at these sessions will qualify for CPD credits in Informal activity, unless otherwise noted.

Legend:
- Practicing Geoscience
- Practicing Engineering
- Plenary Sessions
- Practicing the Professions
- Regulating the Professions

## Tuesday, April 27, 2021

**12:00 - 2:00 PM**

### Plenary Session – Trends in Self-Regulation

Conference Opening with President Andrew Lockwood, P.Eng., FEC

Session Facilitated by: Bob McDonald, P.Eng., FEC, FGC (Hon.), FCSSE – APEGS Executive Director and Registrar

### The Winds of Change: Key Trends Affecting the Regulation of Professions

**James Casey, Q.C.**

Keynote Speaker – James Casey

We are in a time of unprecedented rapid change in the regulatory landscape in Canada. This session will focus on the key trends affecting the regulation of professions across Canada including the engineering profession. The session will address the evolution in societal attitudes and public policy driving the changes. Regulators need to reflect on whether these changes represent threats or opportunities or both. Most importantly, the session will generate ideas on how professions can respond to these trends in a proactive and strategic way.

James (Jim) T. Casey, Q.C. is a partner at Field Law working in the firm's Edmonton office. His primary areas of practice are professional regulation and acting as a labour arbitrator. Jim founded Field Law's Professional Regulatory Group and acts as legal counsel to numerous professional organizations. Working with his colleagues,

Jim has helped develop Field Law's Professional Regulatory Group to become one of the largest in the county focusing exclusively on representing professional regulators.

Jim is considered to be one of the leading authorities in the law of professional regulation. He provides advice in all areas including discipline, registration, unauthorized practice, mobility, governance issues and development of legislation.

He has appeared before the Supreme Court of Canada, all levels of Courts in Alberta and numerous administrative tribunals. Jim also acts as independent counsel to professional regulatory tribunals.

Jim focuses a significant part of his practice on developing and providing training for regulators, their tribunals and staff.

Jim is the author of many publications including *The Regulation of Professions in Canada* which is considered to be the leading legal text in professional regulation. "The Regulation of Professions in Canada" is used by regulators and legal counsel across Canada and has been relied on by numerous tribunals and courts, including the Supreme Court of Canada.

Jim's newest book published in 2020 is *The Annotated Health Professions Act* which he co-authored with Katrina Haymond, Greg Sim and Jason Kully. Jim has been active in the management of Field Law serving as the firm's managing partner for eight years before returning to full-time legal practice in 2016.

Jim has contributed to his community by serving on the board of directors of a wide range of not-for-profit organizations. Currently Jim serves on the board of the Citadel Theatre and is chair of the Governance Committee.

***Note – attendance at this session counts as credit for your annual verifiable ethics requirement.

**2:30 - 3:30 pm**

## The History of Carbon Capture and Storage (CCS) in Saskatchewan… Does it have a future?

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

ABSTRACT: 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.

Weyburn was a unique project in that it brought together many different groups, quarterbacked by the Petroleum Technology Research Centre (PTRC).

After a large multidisciplinary study, the conclusion was that $CO_2$ injected at Weyburn for enhanced oil recovery would remain stored permanently.

The experience gained through Weyburn, led the PTRC to the Aquistore project.

Located near the SaskPower Boundary Dam CCS capture plant, Aquistore was to prove the viability of $CO_2$ storage in a deep saline reservoir.

Presently, the governments of Saskatchewan and Canada are the ones to decide if CCS has a future in the mix of greenhouse gas mitigation strategies we employ. With new projects underway throughout the world and an intergovernmental panel on climate change report that insists CCS is necessary to meet emissions targets, the path forward becomes clearer.

**4:00 - 5:00 pm**

## Climate Services Training

Dr. Dave Sauchyn, P.Geo.

ABSTRACT: Municipalities, government agencies and private and crown corporations are now 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 has created a demand for a common understanding among practitioners of the science of climate change, risk and impact assessment, adaptation principles and best practices.

Relatively few professional engineers, planners and policy makers have post-secondary education related to climate change.

As a university-based research centre and a founding partner of the prairie hub in the Canadian Centre for Climate Services, Prairie Adaptation Research Centre is strategically situated to provide professionals with training in climate change science and its application to adaption policy and planning and engineering design.

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 of climate data.

## Wednesday, April 28, 2021

**8:00 - 9:00 am**

## Overview and Update on APEGS Governance Change Project and Bylaw Changes

Members of the APEGS Governance Change Steering Group

ABSTRACT: This session will provide members with an overview of the recommendations that Council has approved as part of the Governance Change project and will focus on those that require Bylaw changes to be implemented. Members will be asked to vote on the Bylaw changes at the annual meeting of members on May 1, 2021.

**9:30 - 10:30 am**

## Geoethics in Reporting for Resource Companies

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

ABSTRACT: Professional geoscientists and engineers are coming under increasing scrutiny for ethical behavior. For geoscientists, this scrutiny began with the 1993 Bre-X scandal and includes subsequent cases of fraud, negligence and shoddy reporting by professional geoscientists.

In Canada, regulators implemented NI43101 reporting standards and the identification that all reports, news releases and associated reporting for mining projects be vetted by a qualified person (QP) - a professional geoscientist or engineer.

The regulators have developed three steps to address geoethics relating to our obligations as professionals.

First, Geoscientists Canada developed a short course targeting students in their final years of geoscience study to make them aware of and provide resource material with respect to their obligations as professional geoscientists.

In Saskatchewan, the second step is the APEGS Law and Ethics seminar and exam which all Geoscientists-in-Training and Engineers-in-Training must take and pass to become a professional geoscientist or engineer.

Finally, APEGS has instituted an annual, on-line ethics exam that all professional geoscientists and engineers must complete to maintain their license to practice. These steps are in addition to our obligations as professionals to undertake verifiable continuous professional development activity.

It is not possible to legislate ethical behaviour reporting, so it is incumbent on each of us as professional geoscientists to maintain ethical standards in practice and reporting for both ourselves and our colleagues.

***Note – attendance at this session counts as credit for your annual verifiable ethics requirement

**10:45 - 11:45 am**

## Indigenous Consultation and the Public Interest for Engineers and Geoscientists

Benjamin Ralston

ABSTRACT: According to the Supreme Court of Canada, the Crown's duty to consult and accommodate Indigenous peoples gives rise to a special public interest that may supersede other public interest concerns.

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.

It will outline the complex implications of this constitutional imperative for environment regulation and resource management in Saskatchewan.

The session will also canvass how this duty incentivizes negotiated agreements between Indigenous rights holders and project proponents with important implications for the ongoing operation of particular projects, including hiring, procurement and environmental monitoring.

**12:00 - 1:30 pm**

## Plenary Session - 21st Century Water Security as Viewed from Space

Jay Famiglietti

### Jay Famiglietti - Professor, NASA Senior Water Scientist and Global Water Crisis Specialist

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 past several years.

Professor Jay Famiglietti is IS0 Research Chair? in Hydrology and Remote Sensing and Director of the Global Institute for Water Security at the University of Saskatchewan. He is also the executive director of the University of Saskatchewan Global Institute for Water Security and a Professor in the School of Environment and Sustainability and in the Department of Geography and Planning.

**2:00 - 3:00 pm**

## Production of Clean Energy: What Can Engineers Do?

### Raphael Idem, PhD, P.Eng. - Clean Energy Technologies Research Institute Faculty of Engineering & Applied Science - University of Regina

ABSTRACT: Energy is required for industrialization and maintaining/improving our standard of living. At the moment, the majority of the 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.

Many useful strategies have been conceived to mitigate this issue. None is a silver bullet. Therefore, one policy fits all type solution may not work.

What is needed is to select and mix strategies depending on the natural resources of each jurisdiction. The challenge lies in finding the most effective mixing formula for the least cost per jurisdiction such that the targets on environment, economy and society's living standard are met.

These are tasks engineers perform, which may involve research, development, design, construction, operation, etc.

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.

**3:30 - 4:30 pm**

## Topic to be confirmed

## Thursday, April 29, 2021

**8:00 - 9:00 am**

### RNA Testing in Wastewater for COVID-19

University of Saskatchewan

ABSTRACT: Details to follow at www.apegs.ca

**9:30 - 10:30 am**

### Small Modular Reactor

NB Power / SaskPower

ABSTRACT: Details to follow at www.apegs.ca

**10:45 - 11:45 am**

### Critical Materials for Green Energy: Global to Local Geological Constraints

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

Abstract: 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, such as cobalt, lithium, rare earth elements, platinum group elements, manganese, graphite, indium and gallium in their production.

These are often called critical materials because their supply is often dependent on non-geological factors and are difficult to replace or recycle.

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.

**12:00 - 1:30 pm**

### The Success-Energy Equation: How to Regain Focus, Recharge Your Life and Really Get Sh!t Done

Michelle Cederberg

Michelle Cederberg – Speaker, Coach, Consultant

Abstract - In an age of disengagement, distraction and fatigue exacerbated by the ongoing pandemic, how we work and live has been tested. We're busy, stretched and stressed and as we navigate the constant change and uncertainty of it all, it can feel difficult to stay focused and do our best work.

In this thought-provoking session, health and productivity expert Michelle Cederberg shares research from her new book The Success-Energy Equation that will help you regain focus, recharge your life and really get sh!t done, even during these challenging times.

By using the wisdom of science and your own innate common sense, you can combat what Cederberg calls 21st-and-a-quarter-century stress and tap into a well of energy that will reduce the stress in every area of your life.

In this high-energy keynote you will:

- Get clear on your own definition of success; what really matters to you in work and life and what drives you to do what you do – even as we ride out COVID-19.
- Look at typical barriers that get in the way of success and how you can effectively navigate them.
- Discover four science-backed variables that contribute to higher levels of goal success and overall well-being and how to make them work for you.
- Embrace a simple but powerful habit you must do daily to ensure ongoing success with everything you do that's important to you.

Full of hilarious stories, anecdotes and innovative strategies, you'll leave this session with a renewed sense that it's possible to break free from stress and drive your own success through the pandemic and beyond. That's Success-Energy, and it's a formula worth calculating.

**2:00 - 3:00 pm**

## COVID-19 Ventilators

RMD Engineering

ABSTRACT: Details to follow at www.apegs.ca

**3:30 - 4:30 pm**

## Communication as Ethical Action

Jeanie Wills and Deb Rolfes

ABSTRACT: 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.

***Note – attendance at this session counts as credit for your annual verifiable ethics requirement.

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**Saturday, May 1, 2021**

# APEGS 91st Annual Meeting

9:00 AM

*The Engineering and Geoscience Professions Act* and Bylaws require that the annual meeting of the Association be held in the first six months of the year at a place in Saskatchewan determined by Council. The 91st annual meeting will be held online and will be called to order at 9 a.m. Saturday, May 1, 2021.

**Registration**

All members will be required to pre-register to obtain a secure access code to attend the meeting and to be able to vote. The deadline to register is 11:59 p.m. on April 16, 2021. Information on registration will be included in the formal Notice of Annual Meeting, which will be sent to all members in April. To register, go to apegs.ca.

**The agenda for the meeting includes:**

- Minutes from the 2020 Annual Meeting.
- Business arising out of the minutes.
- Reports from boards and committees.
- Audited financial reports.
- Bylaw amendments.
- New business.
- Report of the scrutineers.

**Bylaw Amendments**

Council has approved a variety of amendments to the Regulatory Bylaws and the Administrative Bylaws which are to be "confirmed, varied or revoked" by the membership in attendance at the next Annual Meeting of the members of the Association. The details of the changes will be included in the official Notice of the Annual Meeting to be sent to all APEGS members in April as is required by *The Engineering and Geoscience Professions Act*.

**Areas covered in the bylaw amendments are:**

- Annual Meeting of members and special meetings of members timing and format.
- Housekeeping.
- Engineering / Geoscience Licensee qualifications.
- Council composition.
- Council nomination and election processes.

# Our Newest Professional Members

## Join our 14,000 members in congratulating our newest professional members –

dedicated professionals who have completed a minimum of eight years of university study and work experience to earn the designation of Professional Engineer (P.Eng.), Professional Geoscientist (P.Geo.), Engineering Licensee or Geoscience Licensee. Pictured below are some of the 900 professionals who have received their licence to practice engineering or geoscience in Saskatchewan in the past year.

Ackerman, Lindsey, P.Eng.
Nicholson Construction Company

Ahokas, Tawny
Engineering Licensee
Stantec Consulting Ltd.

Alabi, Wahab O., P.Eng.

Alam, Abid, P.Eng.

Alilanj, Taulant, P.Eng.

Aryal, Arjun, P.Eng.
Gang-Nail Trusses

Awume, Bennet, P.Eng.
PINTER & Associates Ltd.

Ayilara, Ajibola, P.Eng.

Berzins, William E., P.Eng.
West Earth Sciences

Bustamante, Mauricio, P.Eng.

Chung, Chi Yung, P.Eng.
University of Saskatchewan

Davis, Scott A., P.Eng.

Dhungana, Monika M., P.Eng.

Ebuehi, Jude O., P.Eng.

Farahzadi, Mahdi (Matthew), P.Eng.

Fedorchuk, Jeremy, P.Eng.

Fremont, Gregory M.
Engineering Licensee
AECOM

Gerow, Geoffrey E., P.Geo.

Gray, Kristin, P.Eng.
Associated Engineering Ltd.

Groat, Pamela, P.Eng.

Hassan, Dr. Mohamed, P.Eng.
YEG Engineering Group Inc.

Hudd, Carissa, P.Eng.

Hunt, Seth E., P.Eng.
Co-op Refinery Complex

Hussain, Samrat, P.Eng.
R.M. of Torch River No. 488

Jassar, Ravi Inder Singh, P.Eng.

Kacar, Stanko, P.Eng.
Siemens Canada Ltd.

Kimber, Alyssa K., P.Eng.

Lavoie, Hilary D., P.Geo.

Leonard, David J.,
Engineering Licensee
Entuitive Corporation

MacEwen, Ryan C., P.Eng.
MacEwen Constructors Inc.

McWillie, Justin, P.Eng.

Medforth, Erin, P.Eng.
Stantec

Miller, Brian R., P.Eng.

Moeller, Scott C., P.Eng.

Mohamed, Mohamed I. Sh.,
P.Eng.

Mondragon Sanchez,
Carlos A., P.Eng.
International Road Dynamics Inc.

Mucha, Derek, P.Eng.
Shermco Industries

Munro, Josh, P.Eng.
Wolfrom Engineering Ltd.

Nawara, Omar, P.Eng.

Olamilehin, Olakunle, P.Eng.

Qin, Wayne, P.Eng.

Sam, Saju J., P.Eng.

Santos, John K., P.Geo.
Orano Canada Inc.

Schultz, Mathew C., P.Eng.

Seabrook, Sara R., P.Eng.
Golder Associates Ltd.

Semenoff, Tynan, P.Eng.

Shenouda, Bassem, P.Eng.

Tang, Hongshan (William),
P.Eng.

Taylor, David, P.Eng.

Thiemann, Blake E., P.Eng.

Tran, Viet N., P.Eng.

Uwagboe, Osaze A., P.Eng.

Zhang, Xiao T., P.Eng.

SPONSORED BY:
AECOM, Associated Engineering Ltd. Co-op Refinery Complex, Entuitive Corporation, Gang-Nail Trusses, Golder Associates Ltd., International Road Dynamics Inc., MacEwen Constructors Inc., Nicholson Construction Company, Orano Canada Inc., PINTER & Associates Ltd., RM of Torch River No. 488, Shermco Industries, Siemens Canada Ltd., Stantec Consulting Ltd., University of Saskatchewan, West Earth Sciences, Wolfrom Engineering Ltd., YEG Engineering Group Inc.

## INTRODUCING THE

# Online Register of APEGS Members

At the 2018 APEGS annual meeting, a motion was made by the members requesting that Council consider making available an online register of members.

At the time, *The Engineering and Geoscience Professions Act* (the Act), along with many other acts governing self-regulating professions in Saskatchewan, only permitted the register be made available at the APEGS office.

APEGS discussed this restriction with the Ministry of Justice which resulted in an omnibus change to these acts permitting an online register.

In addition to the request by the members to consider an online register, the consultant engaged to conduct the governance review of APEGS recommended that an online member register would enhance transparency to the public and reduce risk to public safety. Members of the public would be readily able to determine if an individual or corporation is licensed with APEGS to practise the engineering or geoscience professions.

At the September 18, 2020 APEGS annual meeting, the members present passed a motion to add Section 30 to the Regulatory Bylaws permitting limited information for individual members and Certificate of Authorization holders to be made available to the public from the APEGS website.

The current Regulatory Bylaws can be found on the APEGS website at About Us / Act and Bylaws.

**Information that is available through the online register is:**

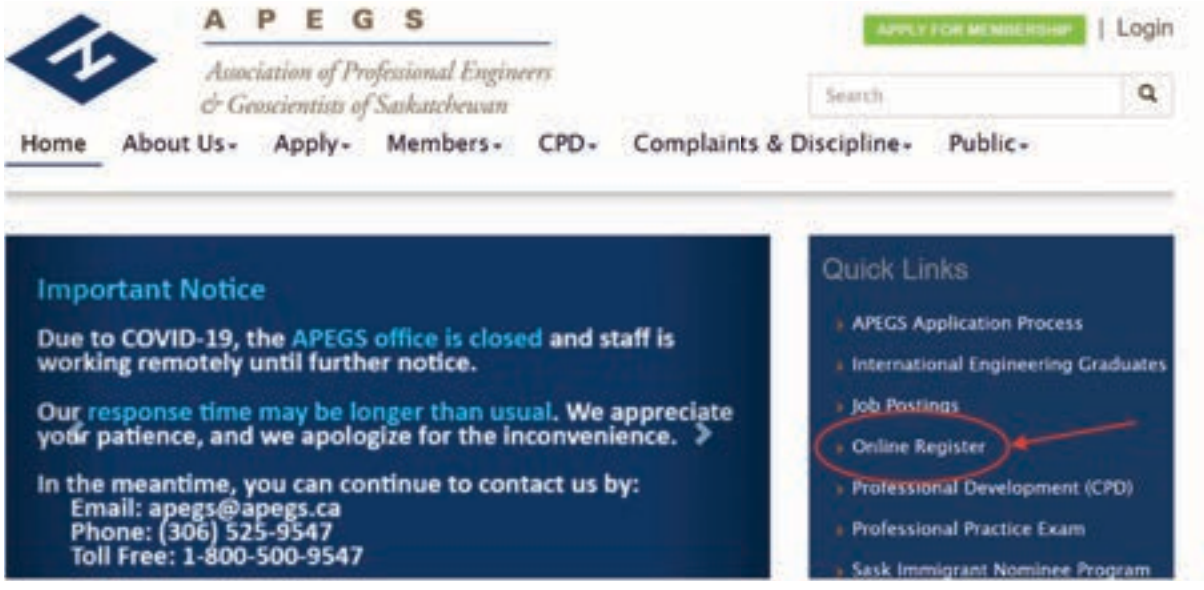
Individual Members

- First name
- Last name
- Middle name or initial, where it is available
- Membership category, as defined in section 3 of the Regulatory Bylaws
- Expiry date
- License status

Certificates of Authorization

- Name of holder
- Location
- Listing of official representatives

APEGS' online register was launched in January 2021 and can be found in the 'Quick Links' on the APEGS home page at apegs.ca, as shown below.



# The Compliance Report

**APEGS is responsible for the regulation of the practices of professional engineering and professional geoscience in Saskatchewan, which includes safeguarding the public.**

**APEGS has been granted the privilege of regulating these professions by the Government of Saskatchewan, which has given APEGS the mandate to do so through *The Engineering and Geoscience Professions Act.***

## Did You Know....

### APEGS Licence Waiver Program

Annual fees for members are split into two portions: membership fee and licence fee. Members are eligible to apply for a licence waiver if they meet specific criteria. For information on the eligibility criteria, visit apegs.ca and navigate to the tab Members/Annual Fees, Licence Waiver.

### Licence Waiver Holders Living in Saskatchewan

Members who reside in Saskatchewan are only eligible to hold a licence waiver if they are unemployed (i.e. not working at any job whatsoever in Saskatchewan).

If a licence waiver holder gains employment (either inside the professions or outside the professions), they must reinstate their licence.

To reinstate a licence, contact the APEGS office.

### Licence Waiver Holders Living Outside Saskatchewan

Members who live outside of Saskatchewan are eligible for a licence waiver if they are not practising engineering or geoscience on projects or properties located in Saskatchewan.

Regardless of the member's physical location, if a member is working on an engineering or geoscience project located within Saskatchewan, they must be licensed.

### Licence Waiver Holders and CPD

Licence waiver holders are still members of APEGS and are required to report Continuing Professional Development (CPD) credits to APEGS each year.

To determine their annual requirements, members should consult the APEGS CPD Program Document, which is available for download from the CPD tab at apegs.ca.

### Licence Waiver Holders and Professional Responsibility

Licence waiver holders are not licensed to practise professional engineering or professional geoscience in Saskatchewan.

This means that licence waiver holders are not eligible to take professional responsibility for a project and are not able to use their seal.

### Licence Waiver Holders and Use of Title

Licence waiver holders are still permitted to use their title in Saskatchewan.

# Celebrating Our Own

UofS

**Dr. Ajay Dalai, P.Eng.**

## USask's Dalai one of Canada's longest-serving Canada Research Chairs (CRC)

*This article first appeared on the University of Saskatchewan's College of Engineering webpage.*

Dr. Ajay Dalai, P.Eng., was a petroleum engineer early in his career at the University of Saskatchewan (USask) College of Engineering when he was asked to explore a new research path - bioenergy and its environmental benefits.

It has been a successful 20-year journey.

Dalai is one of Canada's longest-serving Canada Research Chairs, having been the CRC in Bioenergy and Environmentally Friendly Chemical Processing since 2001.

His work has made him a world leader in efforts to develop alternative energy sources. He has been awarded more than $36 million in funding from the Natural Sciences and Engineering Research Council of Canada and other competitive sources.

"It has worked out really well, not only for me but for the department, the college and the university," said Dalai, a distinguished professor in the Department of Chemical and Biological Engineering. "We have brought a lot of new knowledge over the last 20 years to the world."

Dalai began as a Tier 2 chair on July 1, 2001. He and the six other researchers became USask's first ever CRCs that year. Of that group, only Dalai remains. This makes him the longest-serving CRC at USask.

Though Dalai was trained as a petroleum engineer, he was asked to develop a CRC application focused on bioenergy - renewable energy generated from organic matter. Dalai knew little about it and recalled that it was not on the radar of provincial or federal governments.

"I looked at determining what is the environmental benefit, the financial benefit?" he said. "What is the benefit to industry? Canada has a lot of natural resources, but we didn't have a lot of technology to transfer these resources into value-added products that can bring in money for farmers."

In 2009, Dalai became a Tier 1 CRC. His large research group - he supervises more than 30 people every year - now works in three theme areas: Bioenergy, heavy oil processing and environmental engineering.

**Significant achievements include:**

- Developing a catalyst, in collaboration with Dr. Hui Wang, P.Eng., M.Sc., from his department, to transform carbon dioxide and methane - potent greenhouse gases - into synthesis gas, or syngas, which is a basic feedstock for producing gasoline and other fuels.
- Developing a method to produce biodiesel from low-cost raw materials such as waste cooking oil, soya, green seed canola and mustard with reduced water usage.

Dalai said it's rare to find researchers working in both petroleum and bioenergy and points with satisfaction to a successful 10-year collaboration with SaskPower and the Saskatchewan Research Council to reduce mercury in flue emissions at the Boundary Dam Power Station and a 25-year relationship with Syncrude Canada.

"We're not only strong in bioenergy, but we're very strong in petroleum research and in pollution control," he said.

Dalai's research program is an example for other researchers, said Dr. Terry Fonstad, P.Eng., FEC, FGC (Hon), Associate Dean of Research and Partnerships at the College of Engineering.

"His work has shaped our research mission," Fonstad said. "He impacts key industries in our province, including agriculture and oil and gas and shows how expertise from USask Engineering is playing a critical role in for the economies of our province and our country."

Early in 2020, Dalai was awarded the Royal Society of Canada's Miroslaw Romanowski Medal for outstanding contributions to environmental science - one of Canada's highest honours for academics.

In October 2020, he was awarded the R.S. Jane Memorial Award by the Canadian Society for Chemical Engineering for exceptional achievement to the field of chemical engineering.

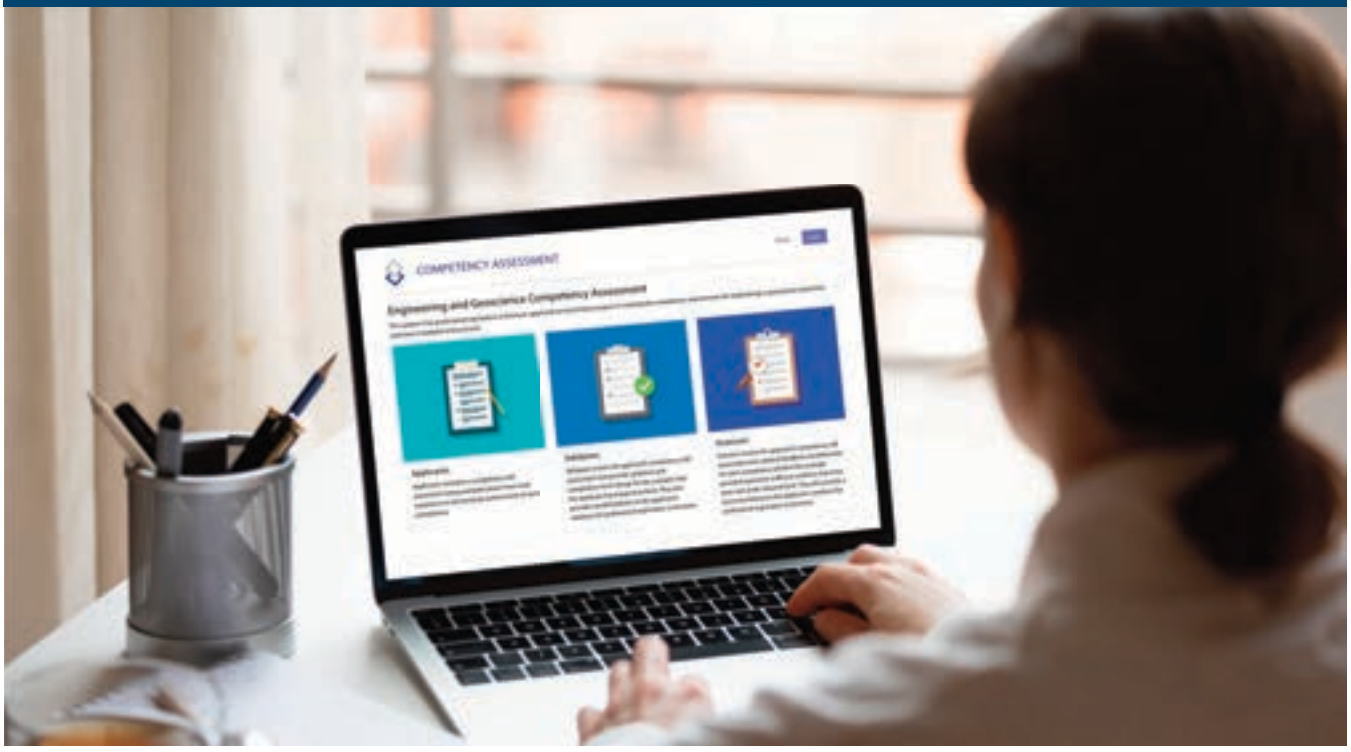
Dalai has published more than 550 research papers, which have been cited more than 28,000 times and he has supervised more than 150 graduate students and post-doctoral fellows.

"Ajay Dalai is an inspiring academic," said Dr. Suzanne Kresta, P.Eng., FEC, Dean of USask Engineering. "He exudes enthusiasm and excitement. He's a world leader in his field due in no small part to the fact he works incredibly hard and holds himself and those around him to a standard of excellence every day."

Dalai is quick to credit the encouragement of his partner over the course of their 30-year marriage, as well as the support of their children. He said an ability to recruit and mentor high-quality research personnel, prioritize and provide clear direction to students so that they can meet their goals have contributed to his success.

"Being passionate is not very difficult when you are surrounded by a lot of talented, world-class students, post-doctoral fellows, mentors and collaborators and have an excellent research climate here at the college and the university," he said. "How do you stand back and relax when everything is in place to succeed in doing high-quality research?"

## Competency-Based Assessment for Geoscientists-in-Training is here!



Competency-Based Assessment (CBA), the new online experience reporting system for geoscientists-in-training came into effect on January 1, 2021.

For more details, please visit apegs.ca under Members / Competency-Based Assessment - Geo.

**For more information, contact:**

Tina Maki, P.Eng., FEC, FGC (Hon.), Director of Special Projects
tmaki@apegs.ca • 306-525-9547 (in Regina) • 1-800-500-9547 (toll free North America)

# News Beyond Our Borders

dailyhive.com

### Trans Mountain pipeline fortunes shine

*Reuters* - The expansion of Canada's government-owned Trans Mountain pipeline assumes greater importance for the oil sector after the cancellation of rival Keystone XL reduced future options to carry crude, potential buyers say.

Trans Mountain Corp, a government corporation, is spending $12.6 billion to nearly triple capacity to 890,000 barrels per day (bpd), a 14-per-cent increase from current total Canadian capacity.

The federal government bought the 68-year-old pipeline in 2018 when previous owner Kinder Morgan faced legal hurdles to expand the 1,150-kilometre (715-mile) line running from Alberta to the British Columbia coast. Ottawa has always said it would find new owners.

In January, U.S. President Joe Biden revoked the presidential permit for TC Energy's Keystone XL pipeline (KXL), undoing efforts by former President Donald Trump to build the line that would have supplied U.S. refiners with 830,000 bpd of Canadian oil.

That decision has made the case for completing Trans Mountain's expansion stronger.

Trans Mountain has completed 22 per cent of the expansion project, called TMX, which is scheduled for service in December 2022. Suncor Energy Inc, Canadian Natural Resources Ltd and BP PLC are among the committed shippers who have secured 80 per cent of its additional capacity long-term.

### Cascade Power Project wins international award

*The Canadian Press* - Cascade Power won an international award for innovation in First Nations partnership and long-term contracting strategy.

Project Finance International (PFI), a source of global project finance intelligence, awarded Cascade Power Project with its Canadian Power Deal of the Year for 2020.

The $1.5-billion, 900-megawatt combined-cycle natural gas-fired power generation facility was chosen by PFI because of its innovation in a number of areas, including how it "handled Indigenous involvement".

Six First Nations - the Alexis Nakota Sioux Nation, Enoch Cree Nation, Kehewin Cree Nation, O'Chiese First Nation, Paul First Nation and Whitefish Lake First Nation - formed the Indigenous Communities Syndicate LP (ICS) to invest in the project, which is under construction southwest of Edson, Alta.

ICS has agreed to invest $93 million in the project. Their investment is backstopped by the Alberta Indigenous Opportunities Corporation (AIOC). AIOC was formed as a Crown corporation in November 2019 by the province to help Indigenous groups invest in natural resource projects in Alberta.

In September, ICS and the Cascade Power Project became AIOC's first commitment to Indigenous investment in a natural resource project.

Six hundred jobs will be created during construction, followed by 25 long-term operational jobs for skilled Indigenous workers employed by Indigenous contractors.

Over the next 30 years, the plant will provide hundreds of millions of dollars to the First Nations.

### TransAlta completes first of three coal-to-gas conversions

*Calgary Herald* - TransAlta Corp. completed the first of three planned coal-to-gas plant conversions, a major milestone for the Calgary-based company that says it is on track to be off coal entirely by Jan. 1, 2022.

The company completed the full conversion of Sundance Unit 5, the first of three planned boiler conversions from thermal coal to natural gas at its Sundance and Keephills power generation facilities near Wabamun.

In 2021, TransAlta will complete its second and third coal-to-gas conversions, with Keephills Unit 2 by mid-June, followed by Keephills Unit 3 by mid-December. In addition, TransAlta is

powerengineeringint.com

repowering its Sundance 5 unit into a highly efficient combined-cycle gas-powered facility, which is expected to come online at the end of 2023.

By the end of this year, TransAlta will end operations at its Highvale thermal coal mine west of Edmonton and will be exclusively generating with natural gas.

In total, TransAlta is investing approximately $1 billion to reduce greenhouse gas emissions from its Alberta fleet. The company is on track to reduce its emissions by more than 70 per cent from 2005 levels by the end of 2022.

In 2014, 55 per cent of Alberta's electricity was produced from coal. The Alberta government announced in 2015 it would eliminate emissions from coal power generation by 2030.

The province is now on track to meet that goal much sooner, thanks to accelerated phase-out plans by electricity producers.

## U of A community remembers lives lost

*Edmonton Journal* – University of Alberta engineering professors Pedram Mousavi, P.Eng., 47, and Mojgan Daneshmand, P.Eng., 43, were on board Ukraine International Airlines Flight PS752 with their daughters, Daria and Dorina Mousavi on Jan. 8, 2020 when the plane crashed near Tehran, Iran.

Jan. 8, 2021 marked one year since the Boeing 737 jet was struck by a ground-to-air surface missile, exploding in mid-air and killing all 176 people on board.

Among the victims were 138 people with ties to Canada, including 13 Edmontonians, including several families and multiple University of Alberta faculty and students, many of which were engineering students.

## UBC students design see-through, full-face respirator

*UBC Engineering* - UBC Engineering students have designed a full-face respirator that they claim is transparent, breathable and comfortable to use.

apsc.ubc.ca

The respirator protects against COVID-19 and other harmful particles and it is lightweight enough to wear all day.

According to the team, the respirator is made of optical-grade polycarbonate and provides a complete seal around the face. It has a pair of KP100 filters, which filter out up to 99.97 per cent of airborne particles measuring 0.3 microns and above and antifog coating.

Most full-face respirators on the market are bulky and hide much of the wearer's face, which makes communication challenging — particularly for people who are deaf or hard of hearing.

The students consulted UBC mechanical engineering professor Machiel Van der Loos, P.Eng., and medical professionals at Vancouver General Hospital during the development process.

They are currently preparing to test the respirator at a lab overseas before applying for authorizations from Health Canada, the Food and Drug Administration and the European Union.

## Turning harvest waste into energy gold

*University of Calgary* - When you imagine the landscape of southern Alberta, you likely think of the Rocky Mountains, the rolling foothills and the colourful patchwork of prairie agricultural lands.

Every fall, those fields of grass and grains are harvested for their seeds, while the straw is either left behind or baled up for animal feed.

Researchers at the University of Calgary Schulich School of Engineering are hoping none of that straw is wasted, as they make progress in using the power of the sun to convert that biomass into hydrogen fuel and value-added biochemicals.

Not only is it more efficient, but it's also eco-friendly and lucrative.

Dr. Jinguang Hu, B.Eng., M.Sc., and Dr. Md Golam Kibria are both assistant professors at Schulich and have been spearheading the research into turning plant material into energy.

While biorefinery has been studied for more than four decades, the two have been working on an environment-friendly approach called photobiorefinery, which uses solar energy to break down biomass.

"We want to create renewable fuels as opposed to petro-chemicals," Kibria said. "We are trying to create a sustainable process where we can use these biomass feeds and straws, which are mostly waste, and make them more valuable."

With help from new technology from the Canadian Light Source at the University of Saskatchewan, the research has led to some interesting findings that have been published by the American Chemical Society.

Hu notes that Alberta is at the centre of this kind of research because of how plentiful this kind of biomass is, but also because of the potential to expand to other materials in the future.

miningnorthof60.com

## Calls to expand Bill 59

*Cision* - To better prevent the risk of accidents in workplaces, the Ordre des ingénieurs du Québec (OIQ) recommends that Members of National Assembly expand Bill 59, An Act to modernize the occupational health and safety regime to include new mechanisms for supervising the work done on engineering structures.

Although supervision of the work done on engineering structures is an activity reserved for engineers because these structures pose an inherently higher risk, it is not mandatory at this time.

As a consequence, the degree of protection afforded to the public, including workers, may vary from one construction site to another.

For construction work, the OIQ thus recommends that employers, owners or contractors be required to provide a certificate of compliance signed by an engineer for all work performed in accordance with the engineer's plan required under the Safety Code for the Construction Industry and all other regulations made under the *Act* respecting Occupational Health and Safety.

For the industrial sector, the OIQ recommends that employers, owners or contractors be required to furnish a certificate of compliance signed by an engineer for the installation, commissioning or testing of industrial equipment.

miningandenergy.ca

## It's time for 'Revenge of the Miners'

*Vancouver Sun* - The post-COVID-19 economic recovery should ring in "the era of the Revenge of the Miners," according to legendary mining financier Robert Friedland in opening the Association for Mineral Exploration B.C.'s Remote Roundup conference.

Friedland, in remarks recorded from his own COVID-19 isolation outpost in Singapore, argued that once governments grapple with what a post-pandemic recovery is going to look like "people are waking up to the fact that certain elements in the periodic table are going to be huge winners".

Copper is going to be needed in massive amounts to electrify greener industries, along with minerals such as nickel and cobalt, Friedland said, especially with governments joining in with infrastructure investment aimed at improving the economic equality of their citizens.

The federal government is also banking on mining as a source of post-pandemic economic strength, according to Natural Resources Minister Seamus O'Regan, who characterized responsible resource extraction as "our family business".

O'Regan said government put a focus on stimulus help for resource industries, such as tax relief, the federal wage subsidy, extending tax breaks on exploration and a $250 million investment in early stage companies.

As long as mining companies can negotiate the permission of Indigenous communities, "the original, Aboriginal owners of that land," Friedland sees it as possible to advance mining in B.C.

In his remarks, Friedland pondered how much the recovery from the pandemic will resemble the influenza epidemic of 1918-19 that claimed tens-of-millions of lives, but then saw an explosion of world economies into "the Roaring '20s".

"When the world focuses on infrastructure development, economic stimulation, a green New Deal, it's apparent that you have to call up those Canadian miners," Friedland said.

## B.C. records banner year for mineral exploration

*Mining.com* - Despite the challenges posed by the pandemic, British Columbia recorded one of its best years in nearly a decade in terms of mineral exploration spending ($422 million) in 2020.

It was a year that also saw several acquisitions, the advancement of what promises to be one of the largest gold mining districts in Canada (the Barkerville-Cariboo Gold project), and most mines continuing to operate and keep thousands of workers employed, despite a pandemic.

In March 2020, the B.C. government declared mining and exploration essential and provided the sector some incentives, including a rate reduction on power, the elimination of the PST on equipment and machinery and the extension of permits.

The Silvertip mine also shut down in February 2020, but could restart later this year, according to Gordon Clark, director of mineral development for the BC Geological Survey. Otherwise, eight mines in B.C. continued operating throughout 2020.

At the national level, federal Natural Resources Minister Seamus O'Regan touted Canada's geological potential and the role mining can play in the energy transition.

"We're one of the only western nations with an abundance of cobalt, graphite, lithium and nickel - all essential to create the batteries of the future," O'Regan said.

netfocustt.com

## Ontario universities aim to increase diversity

*University of Ottawa* - Six universities in Ontario have partnered to create a new fellowship to expand the pathways for Indigenous and Black students pursuing doctoral degrees in engineering to prepare for careers as professors and industry researchers.

The Indigenous and Black Engineering and Technology (IBET) Momentum Fellowships address an urgent need to encourage and support the pursuit of graduate studies by under-represented groups. This lack of representation has hindered enrolment of Indigenous peoples (First Nations, Inuit and Metis) and Black graduate students in science, technology, engineering and mathematics (STEM) programs.

The partnership includes the engineering faculties at the University of Ottawa, McMaster University, the University of Toronto, Queen's University, Western University and the engineering and math faculties at the University of Waterloo.

Each partner university will tailor the program structure and features to support student experience at their institutions.

nrg.com

## Last remaining CCS facility in U.S. shutters

*Reuters* - A $1-billion project to harness carbon dioxide emissions from a Texas coal plant suffered chronic mechanical problems and routinely missed its targets before it was shut down this year, according to a report submitted by the project's owners to the U.S. Department of Energy (DOE).

The Petra Nova plant's performance was seen as a major test of emerging efforts to capture planet-warming gases and store them below ground, a technology considered crucial to companies and governments hoping to fight climate change.

The joint venture project between NRG Energy Inc and Japan's JX Nippon received a $190-million grant from the U.S. government. Before being mothballed, it was the only U.S. project capturing carbon from a coal-fired power plant.

Since Petra Nova started in 2017, it suffered outages on 367 days, according to a technical report it sent to the DOE in March. Issues with the carbon-capture facility accounted for more than a quarter of the outage days, followed by problems with the plant's dedicated natural gas power unit, according to the report.

The facility also missed its carbon capture targets by about 17 per cent: It captured 3.8 million short tons of carbon dioxide during its first three years, shy of the 4.6 million short tons developers expected.

The plant was designed to capture 33 per cent of the carbon emissions from one of four units at the W.A. Parish coal plant and pipe it 81 miles to the West Ranch oil field, where it would push more oil to the surface.

# News From The Field

facebook.com

## AGRICULTURE

### USask ag researchers receive funding

*University of Saskatchewan* - Eighteen wide-ranging University of Saskatchewan (USask) crop research projects were awarded nearly $6 million through Saskatchewan's Agriculture Development Fund (ADF), a program jointly supported by the federal and provincial governments and supplemented by industry partners.

One major project that was awarded funding is the removal of arsenic with agricultural waste. USask engineering researcher Jafar Soltan, P.Eng., is testing the use of low-value agriculture residue - such as straw and meal from canola, barley, wheat and mustard - to transform it into high-value adsorbents that remove arsenic from mining wastewater.

Soltan and his team will engage in research using the Canadian Light Source synchrotron and a pilot project that simultaneously works in two vital economic sectors - mining and agriculture.

The ADF program is supported through the Canadian Agricultural Partnership, a five-year $388-million investment by the federal and provincial governments in strategic initiatives for the sector in Saskatchewan.

### Omics and Precision Agriculture Laboratory opens

*University of Saskatchewan* - Following a successful year of building, prototyping and delivering services to select customers and partners, the Global Institute for Food Security (GIFS) at the University of Saskatchewan (USask) launched the Omics and Precision Agriculture Laboratory (OPAL).

The state-of-the-art facility combines the digital data analysis of microbial, plant and animal genes and traits with the latest precision agriculture technologies (agtech). The goal is to speed up innovation towards new products and services that would enhance profitability and sustainability across the agriculture and food sectors.

OPAL was founded by Agriculture and Agri-Food Canada, the National Research Council of Canada and USask, with strategic investment from Western Economic Diversification Canada. A first of its kind, it is the only facility in the country to provide analytical and computational services including genomics (the study of genetic materials), phenomics (the study of an organism's traits) and bioinformatics (analyses of biological data).

It combines these with the use of the latest imaging and agtech such as Global Positioning Systems, Unmanned Aerial Vehicles, the remote aerial imaging of plants and in-field environmental monitoring to provide clients with a complete diagnostic profile of samples.

The facility will also serve as a vehicle to deploy cutting-edge technology developed through the Plant Phenotyping and Imaging Research Centre, a digital agricultural research centre funded by the Canada First Research Excellence Fund and managed by GIFS on behalf of the university.

The versatility of OPAL's laboratory equipment means it can analyze virtually all genetic material on large scales. This was the case during the one-year pilot when GIFS loaned its equipment to support the Saskatchewan Health Authority's diagnostic testing for COVID-19.

### U of R researchers focus on livestock and forage

*Yorkton This Week* - University of Regina researchers received funding from Saskatchewan's Agriculture Development Fund for their livestock and forage-related research projects.

Dr. Wu Peng, P.Eng., assistant professor in the Faculty of Engineering and Applied Science, received funding for his project, 'The Application of Artificial Intelligence in Agricultural Land Flooding Prediction in Southern Saskatchewan'.

www.yorktonthisweek.com

Wu's research will address the current need to better understand the interaction between agricultural activities, climate change and flooding in the prairies. Wu and his research team will utilize a three-pronged approach to analyze and predict agricultural flooding in southern Saskatchewan.

Dr. Denise Stilling, P.Eng., associate professor in the Faculty of Engineering and Applied Science, received funding for her project, 'Discoveries in Extrusion Pulping Agricultural Crop Residue into Compostable Products'.

Stilling's research will help to address the negative environmental impact of single-use plastics by exploring how cereal and flax straw can be utilized to make decomposable drinking straws, stir sticks, container sleeves and medical devices, such as temporary drainage stents.

## CONSTRUCTION

flikr.com

### Regional roadway study approved

*Swift Current Online* - A future plan for highway systems through and around Swift Current is in the works.

The study will be carried out by the Ministry of Highways and Infrastructure (MHI) after Swift Current city council approved the three-way agreement.

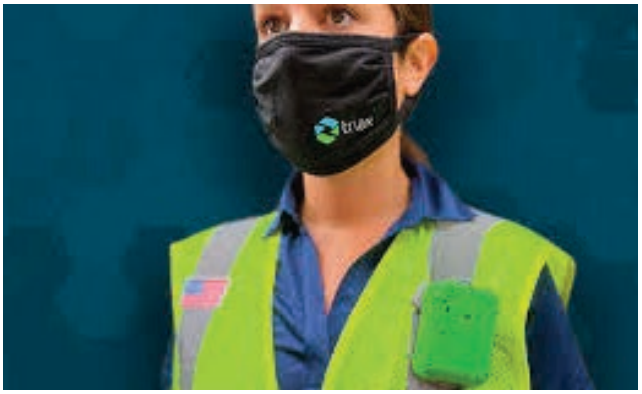
The MHI already has completed such work in Yorkton and Weyburn. Swift Current was one of the next regions on its list.

The regional plans are often focused on the boundary area around urban centres since that is where the provincial, city, rural and rural municipal road networks interact. The studies include highways, key arterial roads and key municipal roads.

The study specific to Swift Current will look at off-ramps to service roads from the Trans-Canada Highway, the feasibility of more overpasses and pedestrian access along the service roads.

The city expects the study to begin in March.

## COVID-19



triaxtec.com

### Nutrien ensures safety through innovative technology

*Business Wire* - At the start of the pandemic, Nutrien Ltd., was deemed an essential service for its role in supporting the agriculture industry.

To help mitigate the spread of COVID-19, Nutrien partnered with Triax to help its workers maintain a minimum of six feet of physical distancing and automatically capture data about their interactions with coworkers, as part of its COVID-19 protocols.

Proximity Trace tags are attached to workers' clothing or hard hats and produce an audio and visual alert to those who come within six feet of one another. These wearable sensors also automatically log data for leaders to quickly perform contact tracing if a positive case arises, thereby preventing further spread at the site and reassuring those who are not at risk.

Since it pinpoints the individuals who may have been exposed, the solution also helps Nutrien minimize operational shutdowns and reduces the risk of associated costs and product delivery delays.

Since the implementation of the technology, Nutrien has been able to safely support as many as 1,700 employees and contractors. The physical distancing alerts have reduced the number of close contacts, positive cases and quarantines.

## ELECTRICITY

CKRM

### SaskPower conducting powerline improvement

*SaskPower* - A 50-year-old power line in southwest Saskatchewan is receiving a much-needed facelift.

SaskPower is making a significant investment to enhance and update an aging power line that crosses Lake Diefenbaker in Saskatchewan Landing Provincial Park.

The transmission line runs between Coteau Creek Hydroelectric Station and Swift Current Switching station and crosses Lake Diefenbaker using a manmade island, called "Power Island" by many locals.

"The work happening at Saskatchewan Landing is a unique example of the maintenance work that is necessary to maintain the provincial power grid," said SaskPower Vice-President of Transmission and Industrial Services Kory Hayko, P.Eng. "In addition to improving reliability for our customers in the region, this work will also increase safety for recreational activities in the park."

The improvements include new steel structures, increased line height across the water and lightning protection equipment. The line's current height is 13 metres, but after this project the line height will be increased to 21 metres to allow boaters to safely pass underneath.

Work is underway and is expected to be complete by April 2021. In total the improvements will cost approximately $8 million.

## INFRASTRUCTURE

### P.A. region taps water project

*Saskatoon Star Phoenix* - Rural communities near Prince Albert want to turn the taps on a $45-million water project.

The Town of Shellbrook and the RM of Shellbrook struck a steering committee with the Prince Albert Rural Water Utility (PARWU), spending $60,000 on studying a new water treatment plant with connecting pipelines to the communities, according to its terms of reference.

The $45-million project aims to build a PARWU water treatment plant on the North Saskatchewan River to serve rural communities in the area by pipeline. It builds on a similar 2018 project, which PARWU abandoned as unviable. Town council says it will be more feasible with the support of the town looking to improve its water quality and the RM's interest in connecting to a potential pipeline. As a regional project, council hopes it gets provincial and federal funding.

The first phase of the project, which includes feasibility and economic viability studies, was to have been completed by the end of February.

Building a water treatment plant could help municipalities and property owners facing limited water access - a common issue in rural areas. The town wants to grow but can't create new residential lots until it increases its water capacity.

Shellbrook's well water is safe, but extremely hard and difficult to treat; guests like visiting hockey teams tend to comment on its "funny taste".

## IRRIGATION

wsask.ca

### Irrigation project to feature Regina engineers

*CTV News* - The Saskatchewan government is moving ahead with engineering studies on proposed Lake Diefenbaker Irrigation Expansion.

Regina's Clifton and Associates will be the lead firm for preliminary engineering design. The work will include geotechnical studies and environmental consulting.

In addition to a preliminary design, the work will include geotechnical, soil suitability and geographical mapping; environmental consulting services and playing a central role in the extensive consultations with First Nations and other stakeholders.

Both First Nations and conservation groups have raised concern about the impacts of the project and the need for consultation.

The $4-billion project will be the most expensive ever undertaken by the Government of Saskatchewan.

Lake Diefenbaker was created in the 1960s with the potential of irrigating half a million acres of farmland. Only one-fifth was realized before further development was abandoned.

A funding arrangement has yet to be reached between the province and Ottawa on the 10-year, $4-billion project.

The project will double the amount of irrigable land in Saskatchewan, adding 460,000 acres.

The engineering studies are expected to take up to 18 months.

# MINING

Orano.ca

## A positive reflection for mining industry

*CKRM* – A report from *Mining Journal* Intelligence World Risk Report has the province's mining sector grinning.

It places Saskatchewan as one of the top jurisdictions in an "opportunity index".

The index is a combination of perceived mineral potential and investment risk. With respect to overall investment, Saskatchewan was one of only two jurisdictions that achieved the highest AAA rating.

The report looked at five major areas - legal, governance, social, fiscal and infrastructure performance metrics.

The report, which is published in London by an Australian-owned company, relied on survey responses from more than 900 mining sector professionals, combined with 10 metrics from established, risk-related indices in determining the rankings. It ranks 111 jurisdictions across 83 countries.

## Athabasca uranium deposits discovered from above

*Resource World* - Encompassing about 100,000 square kilometres, the Athabasca Basin is best known as the world's leading source of high-grade uranium and currently supplies about 20 per cent of the world's uranium.

The basin is the home of both uranium producers and explorers.

Uranium in Saskatchewan was discovered in 1934 at Beaverlodge in the northwest corner of the province and produced uranium from underground mines from 1952-82.

MoneyTalks.com

Saskatchewan's current status of being the world's second-largest producer of uranium started in the corporate offices of the Dynamic Group of oil companies in 1966 in Calgary.

The Group had an aircraft it used to go fishing on Vancouver Island that was written off as a business expense. Their accountants said, "This must change. You must find some kind of exploration activity to justify owning an aircraft."

The aircraft was equipped with an onboard Geiger counter and could detect radioactivity from the air and was being used over the Colorado Plateau where several mines were in production.

Geophysical airborne surveys were an uncommon mineral exploration tool at that time.

Off to Saskatchewan the plane flew equipped with a Geiger counter. It flew a 27,200 line-kilometre survey at a 3.2-kilometre spacing and a 50-metre elevation at a cost of about $100,000 over the entire Athabasca Basin.

The Group received rebates from the provincial government through a Precambrian Incentive Program for its northern Saskatchewan program - and radioactive anomalies they did find.

Drilling commenced in the summer of 1968 and anomalies on the west edge of Wollaston Lake led to the discovery of the Rabbit Lake deposit; the significant Key Lake, Cluff Lake and Midwest Lake high-grade deposits were later found by others.

In the events that followed the Rabbit Lake discovery in 1970, the Saskatchewan Mining Development Corporation was formed to later merge with Eldorado Nuclear Ltd. in 1988 to form Cameco Corp., a public company.

Cameco and partners discovered the McArthur River and Cigar Lake high-grade uranium deposits that went into production in 1999 and 2014, respectively, replacing the mined-out Key Lake, Cluff Lake and Midwest Lake mines.

## MAS Gold poised to reap rich harvest

*BNN* – When you think Saskatchewan, you're more likely to think of fields of golden wheat than the potential of substantial gold deposits waiting to be harvested.

CKRM

To most investors, the prairie province's mining resources are confined to potash and uranium. When it comes to precious metals mining in general and gold in particular, it gets no respect.

But that's changing. Eager to develop its rich mineral resources, Saskatchewan has adopted an efficient regulatory environment, a high-quality geological database and other policies that are attracting major global mining companies to the province.

The new shine on Saskatchewan's precious metals respectability glows most brightly in the La Ronge Domain in north-central Saskatchewan. This established gold-bearing belt has already attracted the attention of SSR Mining, which has invested $15 million to date in the region.

The area has a lot going for it - good geology, proximity to infrastructure and support from local communities.

## OIL AND GAS

cbc.ca

### Investment coming for oil and natural gas industry

*CKRM* - Canadian Association of Petroleum Producers is forecasting a 14-per-cent increase in upstream natural gas and oil investment this year.

Capital spending is expected to be approximately $3.36 billion higher this year, reaching $27.3 billion. The additional spending is primarily focused in British Columbia and Alberta.

Modest improvement is expected in Saskatchewan, where it should see a five-per-cent increase, bringing investment to $2.8 billion.

The Association says Saskatchewan's vision 2030 goal of increasing oil production by 25 per cent, along with fiscal incentives that enhance investment attractiveness have laid a solid foundation for the industry.

The group also says the Saskatchewan-wide rebate on electricity bills is a policy which assist companies with liquidity and signals to the investment community the province is committed to the economic recovery of the business community.

All three provinces have also reached equivalency agreements with the federal government on methane emission reduction regulations, which the Association says provides industry with predictability and a regulatory framework that allows for a solutions-focused approach while enabling industry to advance technological innovation.

Stantec

### 2020 a banner year for CCS facility at Boundary Dam

*Estevan Mercury* - December was the best month of the year for the carbon capture and storage facility at SaskPower's Boundary Dam Power Station, capping what was a productive year for the project.

The facility captured 82,213 tonnes of carbon dioxide in December, bringing the total volume captured for the year to 729,092 tonnes, up from 616,119 tonnes captured in 2019. It was the second-best yearly total ever for the facility. It trails only 2016, when 792,500 tonnes were captured.

The average, daily capture rate when CCS was online in December was 2,724 tonnes per day, with a peak one-day capture of 2,866 tonnes.

CCS also produced a record amount of sulphuric acid at 2,330 tonnes for the 2020 calendar year.

### Methane-reduction projects taking shape

*Estevan Mercury* - The Government of Saskatchewan recently announced support for three new projects that will reduce methane emissions, increase gas processing capacity and create jobs.

The projects qualify for the Saskatchewan Petroleum Innovation Incentive (SPII) and the Oil and Gas Processing Investment Incentive (OGPII), which provide a percentage of transferable royalty credits once private funding has been dedicated and facilities have been built.

forbes.com

Highrock Resources Ltd., along with its joint venture partner, Kindersley-based Verdera Energy, is conditionally approved in the SPII program for their investment in a new flare-gas-to-power project, which is the first of its kind in Saskatchewan.

Executed at Highrock's Minard oil battery, the project will repurpose a jet engine turbine and turn previously flared gas into power for onsite use. It is expected to be operational in the winter of 2021.

Steel Reef is conditionally approved in the OGPII program for a project to expand gas processing facilities, which has already created approximately 50 local construction jobs near Kerrobert.

This investment will add longevity and significantly increase the facility's throughput capacity, allowing oil and gas producers to capture and sell methane gas that is brought to the surface as a byproduct of oil production.

Ridgeback Resources also is conditionally approved for the OGPII program to support construction of a new gas fractionation plant and supporting infrastructure near Innes, southeast of Griffin. This value-added project is currently under construction.

Once operational, the facility will process methane gas to remove natural gas liquids and separate the liquids into products such as propane and butane for sale in the province. The facility allows oil producers to move away from flaring and venting at oil wells.

Combined, these three projects are expected to reduce provincial methane emissions by up to 251,000 tonnes of carbon dioxide equivalent per year.

### Saskatoon company hoping for success in helium

*CKRM* - A Saskatoon-based company is excited about a program it has just started in the province's southwest.

Royal Helium has commenced its three-well drill program at Climax with drilling starting earlier this month.

It is the first of what Royal Helium President and CEO Andrew Davidson hopes is just the beginning of what will be many programs to get the gas out of the ground.

Swift Current online

"We see this as a situation where we drill these three wells and once we are done we come back and keep drilling for the foreseeable future." Davidson said. "The land package that we have in the southwest part of the province and the southeast is known for helium potential."

Davidson says the helium industry is one that is far more than party balloons. It is used in things like MRI machines, space exploration and high-tech manufacturing.

Total cost of the project is $5 million. If all goes well, the drilling will be done at the end of March with production following soon after.

## UNIVERSITY

Swift Current online

**Samit Sharma**

### Engineering alum to support students, industry

*University of Regina* - When Samit Sharma first came to Regina from India in 1996 to study at the University of Regina, his introduction to cold weather, as he said, was more than offset by the warm welcome he received from the people of Regina and the campus community.

Sharma came to Canada, thanks in part, to a scholarship for enrollment as a graduate engineering student, in the Industrial Systems program.

"I have many fond memories of my time at the University of Regina and most importantly I remember the generosity of the people who had welcomed me into the community

and made my experience much more enjoyable especially coming from a warmer climate to a very cold climate where the avenues to call or reach back to India were few and far between," Sharma said.

Sharma is to repay that kindness with some generosity of his own, specifically a $100,000 donation to create a new scholarship for engineering graduate students. Each year for the next 10 years, one $10,000 scholarship will be awarded to a deserving student.

Sharma said the decision to give back to the university came after reflection of how his life was impacted by the support of a scholarship. It's a career that includes his founding of Gaia Power Inc., a power development firm that develops renewable power projects, including some that are operating in Saskatchewan.

Sharma wanted to create the scholarship with a vision of supporting a graduate engineering student at the university exploring an area or issue relevant to the engineering industry in Saskatchewan. He also hopes it will foster a closer collaboration between industry and academia and increase the potential for employment in the student's field of study.

TVO

## Sask companies part of Canadian supercluster to support COVID-19 efforts

*Globe Newswire* – Next Generation Manufacturing Canada, the industry-led organization behind Canada's Advanced Manufacturing Supercluster, has announced over $27 million in funding for winners in its Strategic Supply Challenge.

The competition, which ran last summer, challenged companies to employ advanced manufacturing technologies to build a sustainable, made-in-Canada, cost competitive supply of critical products that can be used in Canada's fight against COVID-19 and beyond. The challenge funding supports 12 Canadian companies and their project partners, representing a total combined investment of over $60 million to develop advanced manufacturing projects.

Titan Clean Energy Project Corp. from Craik and Panther Industries Inc. from Davidson, partnered with BIG-nano, K+S Potash Canada and Canada Masq to develop a process that will build a 100-per-cent Canadian supply of biodegradable melt-blown fabric for use in personal protective equipment and high-efficiency particulate absorbing filters.

This project will produce biodegradable melt-blown resin and fabric that is comprised of 100-per-cent renewable Canadian biomaterials, replacing the highly polluting resins that are currently imported from Asia, Europe and the United States.

The benefits include reduced air pollution, a lower carbon footprint and improved and biodegradable N95 masks and HEPA filter products.

## Researchers develop biomass pellet using agricultural waste

*Bioenergy Insight* - Researchers at the University of Saskatchewan (USask) discovered a way to help utilize agricultural waste to produce pellets.

Tumpa Sarker, a PhD candidate in USask's department of chemical and biological engineering, found that heating canola meal, canola hull and oat hull before compressing it yields a higher quality pellet with lower moisture content and volume and higher energy content and density.

The resulting product has a value similar to coal.

Many farming by-products are currently left out in the field to rot. The resulting methane releases large amounts of greenhouse gas. Compacting plant material into small pellets increases its density up to 10 times, making it more economical to transport and store.

Canada currently exports up to four million bio-pellets to Europe annually, the majority of which are manufactured using forestry by-products. While some Saskatchewan firms use agricultural waste in animal feed, none are converting this material into bio-pellets.

The treatment process used is called torrefaction and involves heating the biomass at temperatures between 200-300 Celsius in an inert environment (an environment free of oxygen and $CO_2$).

The objective of the research, which is supported by Agriculture and Agri-Food Canada as part of the Biomass Canada Cluster and Saskatchewan's Ministry of Agriculture, is to develop a technology that can be picked up by a local company then used to produce high-quality bio-pellets for energy applications.

# Calendar Of Events

**Water Security Agency**
**QP Training Course**
April 6 – 15, 2021
www.apegs.ca

**APEGS Spring PD Days**
**Get to the Point! Technical Writing Course for Business and Technical Professionals**
(six-session series)
April 12, 14, 19, 21, 26, 28, 2021
www.apegs.ca

**LEED Green Associate (GA) Training Webinar**
April 16, 2021
https://leadinggreen.com/online

**ACEC-SK**
**Young Professional Leadership Series**
April 20, 2021
https://www.acec-sk.ca/events/acecsk_young_professional_leadership_series.html

**APEGS Annual Meeting and Professional Development Conference (online)**
Plenary sessions and PD Track Sessions
April 26 – 29, 2021
Awards Ceremony – April 30, 2021
Annual Meeting – May 1, 2021
www.apegs.ca

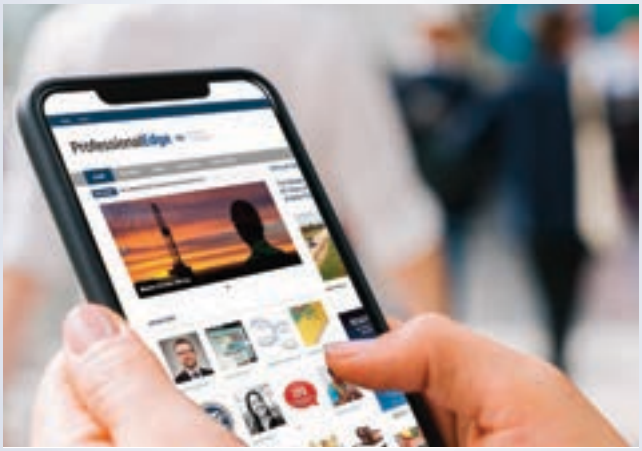
**Water Security Agency**
**QP Training Course**
May 4 – 13, 2021
www.apegs.ca

**LEED Green Associate (GA) Training Webinar**
May 8, 2021
https://leadinggreen.com/online

**2021 Williston Basin Petroleum Conference**
May 11, 2021
https://www.cvent.com/events/williston-basin-petroleum-conference/registration-e138eaf907f84110b033a568f68696b0.aspx?tw=29-B2-C9-97-11-CC-B8-F1-E3-43-A8-1C-FE-C9-BE-EC&fqp=true

**Water Security Agency – QP Training Course**
June 8 – 17, 2021
www.apegs.ca

# Did You Know?



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