



A P E G S

*Association of Professional Engineers
& Geoscientists of Saskatchewan*

THE PROFESSIONAL EDGE

ISSUE 202 • JUNE 2024



Resilience in a Changing World



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Assumptions:
^{1,2} 6% annual gross growth rate and mid-year annual lump sum contributions are assumed. Ontario HST is applied.
¹ Management Expense Ratio MER (%) based on the average Canadian equity mutual funds from Morningstar.
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Association of Professional Engineers
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Regulating the professions. Protecting the public.

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"Resilience in a Changing World" was the
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The next issue of *The Professional Edge* will be in December 2024.

APEGS has reduced the number of print issues of
The Professional Edge from six per year to two and is
supplementing them with monthly e-newsletters that are
distributed on the 15th or next business day.

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President's Message



Erin Moss Tressel,
P.Eng., P.Geo. FEC, FGC

I am looking forward to the year ahead after an interesting and well-attended Annual Meeting and Professional Development Conference.

It was wonderful to see hundreds of engineers and geoscientists gathered at TCU Place in Saskatoon and to know many more were joining the sessions online for the same reason — to learn from others as we each grow in our careers.

Resiliency is an important ability for each of us to continue to develop and hearing many perspectives on how it applies to our professional endeavours was inspiring. Finding our way forward in a changing world is a challenge each of us faces. The perspectives shared at the professional development conference by speakers, including Jim LeMoine, P.Eng. and Ramy Nassar, help us better understand the people we work with and technology being developed, introduced and adopted as we seek to solve problems faced by humanity. These are topics we don't always consider every day when completing our tasks, but they affect us in our daily work. I appreciate the opportunity to hear and consider the valuable points that were made by these speakers.

The annual meeting, held the day after the professional development conference, was also well attended. Council was asked some very good questions and we appreciate those who participated in the proceedings. What also makes that a special day for APEGS is we welcome the new Council who will continue to serve APEGS in the public interest in the year ahead.

As I take on the role of president, I would like to thank Greg Vogelsang, P.Eng. for his service. His dedication to the work of council in the past year has contributed greatly to APEGS making important advancements to modernize and update its governance best practices. I appreciate and am humbled by the opportunity to continue to serve APEGS over the next year and I am excited to continue to work with and learn from everyone in this organization.

This coming year, we're going to continue our growth and modernization. You will see a governance change to the structure of the volunteer committees so that Council will have more direct sightline to the strategic initiatives. We are also working with our regulatory committees, so that we can streamline APEGS' practices and make our registration process and reviews more consistent and timely.

We will continue our review of our Act and Bylaws, engaging with the government to participate in the process. We are at the start of our engagement process with internal and external stakeholders and appreciate the feedback received thus far. I encourage you to participate in the engagement opportunities throughout the coming months.

The last update I want to highlight for the year ahead is that we will continue to refine our budgeting process, so we have a better understanding of the cost of doing business and the cost of registering individuals in the professions and then regulating them.

As the regulator of the professions, APEGS has a responsibility to represent the public interest. We take seriously the need to maintain the public's confidence so we can effectively self-regulate engineers and geoscientists working in the province.

We maintain this confidence and trust by always looking for ways to improve and then doing the work necessary to develop and implement those improvements. We know our processes are sound and that the professions are well regulated in our province. We see our professions continuing to be held in high esteem. That says a lot about the work done by APEGS, its staff and volunteers and its capability of adapting to what lies ahead in the future.

2024 Annual Meeting and Professional Development Conference



Photo credit: Peter Scouler Photography

The Engineering and Geoscience Professions Regulatory Bylaws require that the annual meeting of the Association of Professional Engineers and Geoscientists of Saskatchewan be held in the first six months of each year, so it is customarily held on the first Saturday in May.

This year's events were a professional development conference on Friday with the theme "Resilience in a Changing World" (a few sessions are featured on pages 13-17) followed by the president's reception that evening and the annual meeting on Saturday morning. In addition, we offered virtual attendance at each professional development session and the annual meeting.

94th Annual Meeting

The 94th annual meeting of the association was called to order in person and virtually at 9 a.m. Saturday, May 4, 2024, with 196 (104 in person and 92 virtual) voting members in attendance. The business of the meeting included:

- Minutes from the May 6, 2023 annual meeting
- Business arising from the minutes

- Message from the president
- Governance continuum update
- Reports from Executive Director and Registrar and from Public Appointees
- *The Engineering and Geoscience Professions Act* review update
- One bylaw amendment
- Audited financial statements
- New business
- 2024 election results
- Council induction

The annual report for 2023 is available at <https://www.apegs.ca/about/publications/annualreports>. Contact APEGS' office for printed copies.

APEGS engaged Insightrix Research Inc., an independent third-party research firm, to conduct the 2024 council elections. Insightrix issued ballots on March 11, 2024 and polling day was on April 8, 2024.

The Executive Director and Registrar reported that the total number of votes cast was 1,587 (1,575 electronic and 12 mail), being 10.23 per cent of the 15,506 total ballots sent out.

New Council

APEGS' council is accountable for administering the affairs of APEGS and the requirements of *The Engineering and Geoscience Professions Act* in the public interest. The president, president-elect, vice-president and immediate past president hold office for a term of one year after having served as a council member for at least a three-year term.

All other councillors hold office for a three-year term with the ability to run for a second three-year term.

APEGS inducted a new council for 2024/2025 at its annual meeting on May 4. The new officers of the council are President Erin Moss Tressel, P.Eng., P.Geo., FEC, FGC, President-Elect Ian Farthing, P.Eng. and Vice-President Nicholas Kaminski, P.Eng. The three new councillors are Neche Igboke, P.Eng., Derek van Nes, P.Eng. and Wesley Wizniuk, P.Eng.



**Erin Moss Tressel, P.Eng.,
P.Geo. FEC, FGC**
PRESIDENT
(1-YEAR TERM)



Ian Farthing, P.Eng.
PRESIDENT-ELECT
(1-YEAR TERM)



Nicholas Kaminski, P.Eng.
VICE-PRESIDENT
(1-YEAR TERM)



**Greg Vogelsang, P.Eng.,
P.Geo., FEC, FGC**
PAST PRESIDENT
(1-YEAR TERM)



Rahim Ahmad, P.Eng.
(2ND YEAR)



Jason Gasmol, P.Eng.
(2ND YEAR)



Neché Igboke, P.Eng.
(1ST YEAR)



Denae Lemieux, P.Eng.
(3RD YEAR OF 2ND TERM)



Kevin Ness, P.Eng., FEC
(3RD YEAR)



Derek van Nes, P.Eng.
(1ST YEAR)



Wesley Wizniuk, P.Eng.
(1ST YEAR)



Richelle Andreas
PUBLIC APPOINTEE



John Breakey
PUBLIC APPOINTEE

Appointments to National Organizations

Engineers Canada – Andrew Lockwood, P.Eng., FEC, FGC (Hon.)

Geoscientists Canada – Kristen Darr, P.Geo., FGC, FEC (Hon.)

Bylaw Amendments

At the annual meeting on May 4, 2024, the members present passed motions to amend the following from The Engineering and Geoscience Professions Regulatory Bylaws.

- Regulatory Bylaw 6.1(1) – Life Member

The amendment will eliminate a contravention of the Human Rights Code by removing the age requirement for life member (engineering) and life member (geoscience). The view that people only retire at 65 is not reflective of the differing ages that people retire from the professions.

This bylaw established the requirements for an applicant to be registered as a life member (engineering or geoscience.) Both life membership categories require applicants to be retired from practising the professions and be at least 65 years of age. Since the age requirement is a contravention of the Human Rights Code, the bylaw amendment would remove the age requirement for life members.

The removal of the age requirement would allow professional members who are currently retired, but are not yet 65, to obtain life membership.

EXISTING BYLAW	PROPOSED
<p>MEMBERSHIP</p> <p>Life Member</p> <p>6.1(1) A member in good standing who is 65 years of age or more, or who was designated a life member pursuant to The Engineering Professions Act, as it existed on March 5, 1997, and who is retired is eligible to be granted life member status by Council.</p>	<p>MEMBERSHIP</p> <p>Life Member</p> <p>6.1(1) A member in good standing, or who was designated a life member pursuant to The Engineering Professions Act, as it existed on March 5, 1997, and who is retired is eligible to be granted life member status by Council.</p>

Before the proposed bylaw amendment can come into force, APEGS must submit it to the minister responsible for *The Engineering and Geoscience Professions Act* and then to the Gazette for publishing.

More information about the amendment is available at www.apegs.ca/assets/proposed-bylaw-amendments-1.pdf.



The Engineering and Geoscience Professions Act Review

APEGS is engaging in a review of *The Engineering and Geoscience Professions Act* and associated bylaws. Below is an overview of information that was shared with the membership at the Annual Meeting and Professional Development Conference on May 3-4, 2024.

Current Status:

Information on the Act and Bylaw Review was presented at the Modern Regulation for a Resilient World Information Session at the Professional Development Conference on May 3, 2024 and at the Annual Meeting on May 4, 2024. APEGS plans to have in-person and online information sessions throughout 2024 and into early 2025. Details on the location, time and topics of each information session will be communicated to APEGS members in the coming months.

APEGS is committed to ongoing communication – updates will be made available through outreach channels such as the E-News, *The Professional Edge* and the Act and Bylaw Review webpage.

Reasons for the change:

The Act and bylaws have not undergone a comprehensive review since 1997. Over the last 27 years, the professions have evolved, including the public's expectations of how APEGS regulates all registrants. Review is important to ensure the way APEGS is regulating the professions is evolving and necessary organizational improvements can occur.

With the introduction of *The Labour Mobility and Fair Registration Practices Act* in May 2022, the time is right to take a closer look at how we regulate, ensuring APEGS continues to uphold public confidence in our processes.

It is important to change before you have to, and we are not alone. Other provincial professional regulators in Saskatchewan and engineering and geoscience regulators throughout Canada have gone or are going through the same changes as APEGS.

Timeline:

It is important to remember that the Government of Saskatchewan owns the Act and will be responsible for approving and implementing any changes made. The

current plan is to provide the proposed changes to government during the call for legislation in early 2025.

If the changes are approved, APEGS hopes they will be implemented by late 2025 or early 2026; however, the timeline is subject to change and may be impacted by the provincial election in the fall of 2024.

What it means to members of APEGS:

Key impacts include:

- A requirement that firms have professional practice standards, similar to sister jurisdictions;
- Simplification of the Act and bylaws for better transparency and understanding of professional responsibilities;
- Modernized legislation that considers public safety and expectations and allows us to remain self-regulating; and
- Strong professions now and into the future.

APEGS does not anticipate that these changes to the Act and bylaws will have significant impact on day-to-day engineering and geoscience practices.



Letter to the Editor

Climate Change and Professional Liability

Energy systems are changing, driven by new energy technologies, but also because of growing needs to address pollution, provide energy security, reduce costs, create new career opportunities and to address potential professional liability. Engineers and geoscientists have an important role to play in supporting and accelerating the transition to sustainability. Our profession is privileged to self-regulate via APEGS, but that privilege also includes obligations to protect the public interest and our shared environment.

It is timely for our professions to consider the pressing issues of climate change, climate tipping-points and ecological overshoot because APEGS is in the process of reviewing our Act and bylaws. Furthermore, climate-related risks are becoming mainstream business issues which have investors and other stakeholders seeking improved climate-related governance and disclosure.¹ APEGS members should consider the preceding points and help guide the review of our Act and bylaws by providing comments during the stakeholder engagement phase anticipated to occur from May – December of 2024.²

The provincial Act that governs our self-regulation, *The Engineering and Geoscience Professions Act*, defines “practice of professional engineering” as work “that requires the application of engineering principles and that concerns the safeguarding of life, health, property, economic interests, the public interest or the environment”.³

There are numerous references to public protection of health, safety and the environment within current governance standards and legislation. How is this to be interpreted and applied today given the urgency of social, economic and environmental issues that we know are upon us?

Ecological overshoot presents an existential threat to much of humanity. The amount of “global warming in the pipeline” already threatens vast amounts of the built infrastructure of humanity. Surely our professions must respond to accelerate the transition to clean energy with more ambition than most. After all, we are the professionals

who discover, extract and refine our resources, but also the people who plan, design, build, manage, measure and evaluate the infrastructure which uses our resources. We are expected to do this work while holding paramount the *health and welfare of the public and environment*.

We are living in a time of great change and this makes people uneasy. Saskatchewan’s expenses in 2023 for additional crop insurance claims of \$853 million and wildfire evacuation costs of \$91.4 million are just two examples of how extreme weather events exacerbated by climate change are already having an impact here in our province.⁴

Our carbon-intensive way of life and the environmental changes that it is producing are both a challenge and an opportunity. Public opinion polls in Canada show that concern about climate change is on the rise, that people recognize the importance of clean energy, but also that people support expanding Canadian oil and gas.⁵ However, climate scientists assert that fossil fuels need to be phased out worldwide over the next 25 to 30 years if we want to protect our quality of life and that of future generations. We are obliged to be responsible ancestors.

Our profession would be wise to carefully reflect on our governance standards and legislation and think about what our role in protecting the public really means. We need to recognize that there are challenges to the sustainable transition, but that we have a duty to help achieve those goals with urgency proportionate to the known consequences of delay. Many engineers and geoscientists are engaged in reducing GHG emissions where they work but given the urgency of the climate crisis it may be prudent to accelerate these efforts.

The undersigned co-authors urge other APEGS members to consider these facts when making submissions related to the planned consultation on our Act and bylaws coming later this year. Furthermore, we urge APEGS to organize a committee to examine these issues and to host events at our upcoming AGMs where members can discuss these

issues and the ethical obligations of our profession as it relates to energy and the environment with more depth. If we fail to adequately self-regulate in response to the clear evidence of growing ecological damage, we may fall short of our obligation to safeguard the public, our economy and the environment and may be subject to significant future professional liability.

Respectfully submitted by:

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A P E G S

*Association of Professional Engineers
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Editorial Response

As a regulator of the engineering and geoscience professions, APEGS protects the public by monitoring and responding to multiple issues of potential public interest and concern as they relate to professional engineering and geoscience practices in Saskatchewan.

In November 2023 APEGS Council approved amended organizational intent statements that reflect environment and sustainability in our functions as a regulator.

APEGS' new Public Accountability Advisory Group, comprised of licensed engineers and geoscientists as well as public representatives, will oversee our efforts to monitor and respond to current and emerging issues of potential public interest.

In addition to reviewing and improving our own environmental footprint as an organization, APEGS will continue supporting registrants' proficiency and competency in environmental and sustainable development practices.

In the coming year, APEGS will incorporate appropriate environment and sustainability into its policies and its review of the *Engineering and Geoscience Professions Act and bylaws*. New professional development opportunities in environment and sustainability and an award recognizing sustainability are also slated for development this year.

For more information on APEGS' intentions and actions in environment and sustainability and other areas of public interest, visit
<https://www.apegs.ca/about/apegs-governance>.

¹ https://www.osc.ca/sites/default/files/2021-10/csa_20211018_51-107_disclosure-update.pdf

² <https://www.apegs.ca/act-and-bylaw-review>

³ <https://publications.saskatchewan.ca/#/products/510>

⁴ <https://www.cbc.ca/news/canada/saskatchewan/forecasts-250m-deficit-1.7041105>

⁵ <https://reclimate.ca/wp-content/uploads/2023/05/2023-public-opinion-summary.pdf>

Unlocking the Power of Generational Collaboration:

Thriving in a Changing Landscape

BY MARTIN CHARLTON COMMUNICATIONS



Engaging employees by aligning their professional strengths with their employer's goals can help organizations overcome challenges attracting and retaining professionals.

Eddie LeMoine delivered this insight as the breakfast keynote speaker at APEGS' professional development conference.

He explained some of the demographic and societal changes occurring in Canada that are creating difficulties for employers.

"The biggest challenge facing every organization in 2024 and beyond is going to be the impact of the aging demographics and the skill shortage," said LeMoine in an interview before the conference.

"It is a global G7 challenge. You have to look at it from that perspective to truly understand what each industry is facing as we head into the future."

Before becoming a speaker, LeMoine was in senior management, running a large IT company in Canada with hundreds of employees reporting to him. He has sold in excess of \$1 billion worth of products and services in his career.

What LeMoine has learned while studying demographics is what he delivers as a speaker, something he has been doing since 2005. He explains what he recognizes will be the impact of the aging demographics.

"I'm fascinated by it and what's really interesting about it is this was such a predictable thing," said LeMoine, who explained that each week in Canada, there are about 8,000 Canadians turning 65 with more than 6,000 of them retiring.

"These are people that are leaving the workforce and they're leaving forever."

Finding future employees

Replacing them is the first challenge employers face. It is important for employers to understand where their next employees will be found.

"Every single new net job in Canada is going to be filled by somebody who's currently not living in our country," said LeMoine.

At the same time, people wanting to live and work in Canada are facing their own challenge moving to our country.

"A massive amount of people who are retired are

occupying houses, which limits the ability of immigrants to move into Canada.

“The provinces that can figure this out can attract young people and immigrants into their province.”

Work from home considerations

Another recent development in the work world is specific to those who employ knowledge workers, such as engineers. Many returned to the office since being required to work from home during the pandemic. Others continue to work from home full time or they spend some time at home and some in the office in a hybrid arrangement.

The option of working from home means employers can employ any qualified person anywhere in the world. That can be beneficial to Canadian employers, but it is also a vulnerability, particularly for employers in our province.

“This opens the door for other G7 countries to recruit our highly technical resources and allow them to work remotely,” said LeMoine.

“Saskatchewan is a target. The reason why is someone, say in Vancouver, who needs an engineer knows it’s going to cost that employee about \$1.5 to \$2 million to buy a house in Vancouver.

“But they could hire someone in Saskatchewan – where you could still buy a house for \$400,000 – and pay them \$120,000 a year. That’s a bargain for the Vancouver company.”

“We’re seeing this massive kind of redesign of the way people work as we head into the future.”

There is also a need for industries to pay attention to how employers in their industry are attracting and retaining employees, so their industry doesn’t become a picking ground for other industries to find employees. For example, the hospitality industry saw tens of thousands of people move to other industries and LeMoine says they’re never coming back to hospitality.

Engaging employees

Being aware of the current and future situation when it comes to employing people is important, LeMoine explains, to understand why he offers engaging employees as a solution.

He defines an engaged employee as someone who would recommend where they work as a good place to do business and to be an employee. Engaged employees are productive and loyal.

“Basically, 27 per cent of the workforce in North America is responsible for 60 per cent of the total productivity. Those are the most engaged employees,” said LeMoine.

Among those employees who are the most highly engaged,

only about 15 per cent would consider leaving their current employer. But they could move on for a very significant reason, such as being transferred or to accept an opportunity with another employer to advance their career.

The other 85 per cent of employees need attention, too, if an employer wants to have a more engaged workforce. “The more you can move people out of the disengaged into the engaged, the more likely they are – not just to stay – but also they recommend to their friends and other people to come and work where they work,” said LeMoine.

Value of employee surveys

The process of moving more employees toward being highly engaged starts with an employee survey.

“An organization needs to have a baseline. It is important to know what your employees are thinking,” said LeMoine.

A common concern bubbling to the top of all employee survey results right now is employees not feeling there is good communication in their organization. Employees say they don’t feel heard but also that they are not receiving information.

“A big part of that is people aren’t trying to communicate in a way that other people are hearing what they are sharing. That could be because of gender, culture or age,” said LeMoine.

This is not just older employees needing to embrace new technology, such as instant messaging, that younger people value. It is also about younger employees needing to appreciate how people older than them prefer to exchange information. This understanding helps employees build better relationships with their managers, colleagues and clients.

There is one generation that is likely the most challenged to operate in ways that respect other generations’ preferences and differences. That is because there are so many differences and subtleties to learn and apply in their interactions with other people.

That generation is Generation X. This generation follows the Baby Boomers and precedes the Millennials. Those in this generation are now in their mid-40s to late 50s. They can be managing people who report to them and having to manage those they report to as well.

An employee survey is the first step toward understanding each employee’s individual strengths and then understanding how those strengths can be aligned with the goals of their employer. Those alignments should be mapped out to strategically plan for a future that engages more employees.

Now, Next, Never:

A Strategic Exploration of the future of Artificial Intelligence

BY MARTIN CHARLTON COMMUNICATIONS

Ramy Nassar encouraged engineers and geoscientists to think about the impact of artificial intelligence on their day-to-day work today and tomorrow.

In his talk, “Now, Next, Never” he touched on AI’s current capabilities, how it is expected to advance and the societal shifts that could be involved as well as the limits of AI and the abilities of humans.

Nassar is an author and award-winning keynote speaker and facilitator who helps organizations leverage the transformative power of AI + emerging technology and strategic foresight. With nearly 25 years experience in technology and as the former Head of Innovation for Mattel, he leads presentations and workshops with organizations around the world to drive innovation and transformative growth.

With a background in computer engineering and design thinking, Nassar has straddled technical, design and business-oriented roles for clients including Cadillac Fairview, Apple, Air Canada, Facebook, New Balance, Rogers and CIBC. He is a regular speaker at international events including World Usability Congress, IxDA, Machine Learning Exchange, AI Business Summit and Mobile World Congress. Nassar teaches Design Thinking at McMaster University and guest lectures on a range of topics at Toronto Metropolitan University and the University of Toronto. He has been recognized as a Top 40 Under 40 Award winner.

Considering the future

Nassar opened by telling a story about a workshop he organized in 2015 for a client who prepares and sells deli meats. In preparing for it, he reviewed data that showed a trend in the Western world of people changing how they consume meat.

Around the same time, he saw the cover of The Economist magazine with the title “The end of waste.” That cover inspired a display they posted at the entrance of their meeting space that said “The end of meat” – which the client did not appreciate when he arrived for the workshop. Nassar had to explain to the client that the display and its

wording was meant to be a jumping-off point for the workshop.

Nassar and his team were not predicting the end of meat with that display in 2015 but they were stating there was data showing a trend worth their attention. By looking at past and current behaviours for trends as well as related developments, there was an opportunity to consider what could be ahead in the future.

By 2019, several fast-food restaurants had meat alternatives on their menus and Beyond Meat had gone public. That was a change in meat consumption that data showed was on the horizon.

He explained that strategic foresight is not magic and is not academic. It is an imperfect but practical way of mitigating risk and being adaptable.

Leveraging AI

Nassar encouraged those listening to participate in his presentation using a software that allowed the audience to submit answers to questions he posed. One feature of this software is that the presenter can use its AI tools to group responses into thematic clusters.

One of his first questions was, “What are the biggest opportunities for engineers and geoscientists to leverage the potential of AI?” The themes that emerged from the responses included efficiency, automation, data analysis and technical writing.

How change occurs

When it comes to using technology, he asked if anyone could explain how it would make us more efficient and save us time. He reminded the audience that was the expectation of smartphones and that most productivity tools shift how we use our time rather than save us time, he said.

He displayed a chart showing how change occurs, including what he called ‘wild card change’ and ‘slow change.’ Wild card change is very difficult to predict, however it does not represent most change. Slow change is most common and

can have a significant impact over a longer period, even when it feels like change is happening very quickly.

Resilience required

He said that he cannot think of a point in time where it has been more important to be resilient. He then described how foresight can drive resilience for engineers and geoscientists.

This includes anticipating shifts and enhancing adaptability in dynamic industries, identifying emerging risks early and facilitating proactive mitigation strategies, improving decision making in uncertainty and supporting long-term planning so you aren't caught off guard, anticipating regulatory changes and ensuring compliance and innovation as well as facilitating long-term environmental stewardship.

What trends, technologies and milestones have shaped the priorities of today is another question he posed to the audience. One answer was enhanced public awareness.

Nassar said if it is true that the public is taking a greater interest in the work of engineers and geoscientists, it is a trend that is likely to continue to increase and will raise questions for the professions about transparency and communication with the public.

The themes that emerged from all the answers were computers, innovation, automation, social media, environmental awareness, globalization, internet and digitization. He disagreed with the globalization theme, saying the trend is now towards nationalism.

AI now

When it comes to where AI is now, he explained that there has been a democratization of these tools making them more accessible. He told a story of a frozen pizza company that began using AI to analyze the distribution of cheese on their pizzas to ensure it was even. An intern developed this capability, showing the type of differentiating skills employees should look to develop to be considered for future opportunities.

AI is now capable of working in many different modalities, including text, sound and images. That matters, in part, because it raises questions about privacy when it is not always clear what resources are being used to train artificial intelligence.

There are other questions about sensitive information – whether it is personal or work-related – being used in queries that are processed in the cloud. Edge AI is expected to make it clearer where information used in a query ends up being stored.

Finally, organizations are beginning to be held accountable for the outputs of artificial intelligence. Air Canada was ordered to pay compensation to a passenger this year after

he was provided inaccurate information by a chatbot on its website. This set a precedent.

Nassar explained the Janus cone, which is a way of setting historical events on a timeline to better understand the pace and nature of change over time. He also asked those present to look ahead about 10 years and describe what forces, technologies and trends will disrupt the professions. The themes that emerged from the answers included climate change, automation, AI and labour resources.

AI next

Looking at what is next for AI, Nassar went through some examples of emerging uses, including AI-driven predictive maintenance, automated risk assessment tools, structural integrity analysis and environmental impact modelling.

He displayed a quote from Peter Diamandis, the founder of the XPrize Foundation, which reads, “There will be two kinds of companies at the end of this decade: those that are fully utilizing AI and those that are out of business.”

Nassar offered an AI impact framework for best practices for thinking about how and when to bring AI initiatives to life. First, look further ahead by using a strategic foresight approach to understand longer-term trends, forces, threats and opportunities for the organization and stakeholders.

Second, measure what matters. Identify key metrics that you are seeking to impact while in the discovery phase and quickly validate your hypotheses through experiments.

Third, consider responsible AI. Define a set of internal guidelines or rules to establish how the organization will or will not use this disruptive set of technologies.

Fourth, put people first. Spend time considering the positive or potentially harmful impacts to people, including employees, members, stakeholders and others.

Developing strategic foresight

Nassar asked the audience what the most important skills and competencies are to develop to foster a culture of strategic foresight. No one provided scientific terms in their response. He encouraged people to be curious because this quality has been shown to accelerate the impacts of investments into emerging technology. Deciding where technology will and will not be used also matters.

There is power in asking the question “What’s important never?” This includes asking what are people doing, what are people saying, what are people hearing and what do they believe.

He concluded by saying he is excited to see how technology will help humans to overcome their intellectual limitations the way it has helped us already to overcome our physical limitations.

Resilience in Design – Begin with the End in Mind

BY MARTIN CHARLTON COMMUNICATIONS

When you think about resilience, what comes to mind? This question was posed by Jim Boire, P.Eng. to those who came to hear him deliver his presentation “Resilience in design – Begin with the end in mind.”

Engineers, he said, often think of a formula when they consider resilience. How can something be made stronger?

But what about the people you work with? He encourages engineers to consider them as a source of resilience. This matters when working on projects, which bring together a group of people – each with their own personality type, skills, experience and preferences – to work well together so they can be effective and deliver a result.

The lesson of resilience coming from those you work with was reinforced for him during the pandemic. He was leading a team working on a project that developed an emergency use ventilator that was certified by Health Canada and sold to the Province of Saskatchewan. (Read more on this project on page 28.)

Before he got into details about that project as well as another that developed a wall manufacturing system used in modular construction of multi-storey buildings, he explained more about how he approaches leadership and his team through his company in Saskatoon.

Boire is the President and Founder of RMD Engineering. He began his career by becoming a journeyman machinist before getting his Bachelor of Science in Mechanical Engineering from the University of Saskatchewan. Since 2017, he has been a project management professional (PMP).

He has also founded the company One Health Medical Technologies which is certified as Saskatchewan’s only medical device manufacturer. He is currently registered as a PhD Student in Biomedical Engineering at the University of Saskatchewan.

The theme of Boire’s presentation came from author Stephen Covey’s book *The 7 Habits of Highly Effective People*. Habit two is “Begin with the end in mind.” As part of that habit, Covey encourages readers to envision what they want for themselves in the future.

Developing a personal mission statement is recommended by Covey and matters to the team at RMD. Boire shared his own mission statement, which is “To spend life learning the best way to support and mentor those in my circle of influence in a way that provides the best opportunity for them to create the biggest impact possible with values that improve our world. I will do this by continuously improving my knowledge and practice in servant leadership.”

Another habit from that book is “Sharpen the saw.” Boire said that means individuals must take care of themselves. Find ways to restore your resources, energy and health to be resilient.

Boire embraces learning about people and their personality types. He has learned a lot about the Myers-Briggs Type Indicator system. With it, individuals create personal inventories that help to identify their strengths, weaknesses and preferences.

While RMD chose the Myers-Briggs system, Boire pointed to many other personality type systems that can be used. The key takeaway about these systems, he said, is that when a person is forced to use a style over time that does not allow for their preferences, they will burn out.

Boire said his own personality type is ENFP, which indicates he has extroverted, intuitive, feeling and prospecting traits. At another point in his presentation, he said he “loves living in the realm of possibilities.”

He gains energy by interacting with people and willingly shares personal information about himself. His own personal hell would be having to work through a prescribed list of tasks to do on his own.

Boire introduced Myers Briggs training at RMD, bringing in Bruno Konecsni and Rita Priestley to deliver training to his team. A valuable piece of advice he gained from Konecsni about leadership is that a leader needs three things:

1. Know yourself very well;
2. Know the people you work with; and
3. Know your stuff

At work, we tend to talk to other people who are like us. To be resilient as an organization, Boire said everyone

needs to be engaged and involved to get the best out of everyone. Working in a group means embracing differences.

This includes discovering and appreciating differences in communication. People are more likely to be open to hearing what you have to say if you approach them in a way they appreciate, Boire said.

Working with others in an open, honest and respectful atmosphere where individuals listen to understand and then talk can yield strong relationships. When people can talk, work and react in a safe way at work because they trust it won't get used against them, an incredible work environment can be created.

He shared what those at RMD view as excellence. "We believe excellence is achieved when our environment of extraordinary trust and successful relationships is built through open, honest and respectful communication, resulting in effective collaboration."

Boire explained how the ventilator project developed during the pandemic. His daughter is a nurse who works in a Saskatoon hospital. She shared with him that more ventilators were going to be needed. That was the end they had in mind when starting the project.

Understanding how that piece of equipment works, as well as the regulatory requirements involved, was just the beginning. Gathering the knowledge needed to advance the project required bringing together several people who each offered their own expertise. Some were external to the company and some were employees. While there were engineers working on the project, others were also

involved, including a respiratory therapist, computer programmer and a machinist.

Maintaining respect between one another was crucial, especially when they were trying to simplify the design, which is challenging. They wanted to keep the number of components to a minimum and be able to manufacture everything in-house.

In days, they were able to produce a working prototype. Perfecting it required precise adjustments, but that was accomplished as well. They focused on the two most important components of a volume-controlled ventilator – flow measurement and positive end expiratory pressure.

There was a lot of detailed testing of the components, including the flow meter and the variable orifice flap disc. By December 30, 2020, they had received the medical device ISO certification for the U.S. and Canada.

RMD was able to do what typically takes an experienced company three years to accomplish. What was learned from the project can be applied to help medical professionals treat patients with other lung conditions.

The other project Boire described involved manufacturing wall panels used in modular construction. This project required developing equipment to be used in a facility where the manufacturing would take place and having tradespeople apply their skills in new ways.

It meant adhering to strict dimensions and consistent production that was better and faster. Again, the success of this project was due to the people involved trusting one another and contributing toward achieving an impact through their work.



Continuing Professional Development

The Continuing Professional Development (CPD) Program requires APEGS members to complete ongoing continuing education activities to promote and improve their proficiency. It encourages members to engage in lifelong learning to protect public health, safety and welfare. The program framework provides tools for members to assess their current skills, knowledge and abilities, determine activities to maintain or enhance those skills and report completed activities online to APEGS as professional development credits. For more information, navigate to the CPD menu at apegs.ca.

2024 CPD Program Changes

In January 2024, APEGS introduced changes to the CPD program for the 2024 reporting cycle. Below are some highlights. For full details, refer to the [2024 CPD Program Document](#) on the website under CPD / CPD Program Documents.

Removal of the Professional Practice category

Under the previous program, all members were required to obtain at least 30 credits outside of the Professional Practice category. This requirement remains consistent under the 2024 program.

Starting in 2024, the Professional Practice category and the additional 50-credit requirement associated with that category have been removed. By modifying the program and removing the Professional Practice category, the program requirements are now equitable for all members. For those working in the professions, this change does not diminish the value of their work; it merely necessitates a shift in perspective. Most activities that would have qualified for the Professional Practice category are still eligible, but they should now be placed into a different category.

Change in how APEGS classifies categories

Under the previous program, members were required to read the descriptions associated with each activity category to determine if verification documents were necessary for an activity to qualify for credit.

The new program has introduced verifiable and non-verifiable tags and reorganized the categories to enhance clarity. The requirement for verification documents for certain activities remains unchanged. The change lies in the way the categories are presented in the program document.

Verifiable categories continue to be Formal Activity, Presentations and Contribution to Public Knowledge. The non-verifiable categories continue to be Informal Activity and Participation.

Removal of the cap on how many credits can be claimed per category per year.

Under last year's program, members could earn an unlimited number of credits, but there was an annual cap on how many of those credits they could claim per category. Any credits earned above those caps were to be

banked, tracked offline and claimed in a future year.

Starting in 2024, the annual caps per category have been eliminated. This includes no cap on the number of community service hours members can claim per year.

New Annual Requirements

Under last year's program, the CPD requirements were based on a member's licence status for the year.

Starting in 2024, all members (except Life Members and Temporary Licensees) now have the same annual requirements. These are as follows:

- Obtain a minimum of 30 credits, which must include a minimum of 12 credits in verifiable activity categories;
- Obtain credits in at least two of the five activity categories;
- Obtain at least one cumulative hour of verifiable ethics activity;
- Declare or update an area (scope/field) of practice description online;
- Maintain a detailed record of completed activities and the number of credits earned; and
- Report their CPD information online to APEGS by January 31 of the following year.

Members joining APEGS part way through the reporting year may have prorated requirements.

Key Program Constants

With all the program changes, it's important to recognize aspects of the program that remain unchanged. Some of these constants include:

- **Banked Credits** – banked credits in the five remaining categories from 2022 or 2023 are still eligible for claiming in 2024. Members can also continue to bank credits under the new program. APEGS encourages members to claim their oldest unused credits first and then use new credits as needed.

Continuing Professional Development

- **Variation Program** – for members in extenuating circumstances (ex. maternity leave, medical leave, etc.) and unable to meet their annual requirements, the Variation Program continues to offer a solution. These members can apply for a reduction by submitting a Variation Application by September 30. Late applications will not be accepted.
- **Reporting Elsewhere Method** – Members who are registered with and meet the CPD reporting requirements of another Canadian engineering or geoscience regulator are still eligible to report to APEGS annually using the “Reporting Elsewhere” option. To use this option, the member’s preferred address must be outside of Saskatchewan. If the member’s preferred address is in Saskatchewan, they must report their CPD credit details to APEGS.

Featured Professional Development Opportunities

Online Ethics Modules

APEGS has free one-hour online ethics modules available to assist members in obtaining their ethics credit for the year. The modules are not mandatory and are offered as one option available to members.

Our current ethics module topics are:

- Module 1 – Professionalism and Ethics
- Module 2 – Conflict of Interest
- Module 3 – Investigation and Discipline
- Module 4 – The Ethics of Continuing Professional Development
- Module 5 – The Foundation of Ethics

An additional resource was launched on January 1, 2023. The Law and Professional Practice in Engineering and Geoscience educates engineering and geoscience professionals about Canadian and Saskatchewan laws and can help them understand when to seek professional legal advice to protect the public and the environment. Completion of this module would satisfy the annual CPD ethics requirement and would be eligible for three hours of Formal Activity credit.

For more information and to access the modules, please visit the CPD menu at apegs.ca.

Looking for more Professional Development Training?

Do you need help finding available professional development opportunities? The Professional Development Committee continuously sources professional development options which may be of interest to APEGS members.

Links to these courses are organized by industry and are available on the APEGS website. Visit the Professional Development Courses section under the CPD heading on the APEGS website for more details.



New Volunteer Opportunity – Member-Led Webinars

Do you have valuable knowledge to share with fellow APEGS members? APEGS is now hosting monthly member-led webinars and we’re seeking enthusiastic volunteer presenters. Members who present will earn verifiable Presentation CPD credit. For more information or to volunteer, please contact the CPD Department at cpd@apegs.ca.



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APEGS Takes Strides in the Regulation of Firms

To better safeguard the public and the environment and reduce risks to engineering and geoscience professionals, APEGS is developing a new approach to regulate firms that practise engineering and geoscience in Saskatchewan. The approach emphasizes preventive regulation that is characterized by guidance, learning, co-operation and compassion to mitigate human fallibility.

What is the new approach?

In alignment with other regulators, while ensuring a fit with the needs of APEGS registrants, APEGS will require firms to develop, document and follow policies and procedures in the three areas below as part of a **professional practice management plan**.

APEGS will provide support through training, guidance documents and templates.

- **Ethics:** Policies and procedures must meet the intent of APEGS' code of ethics from a firm's perspective.
- **Quality Management:** Policies and procedures must reduce risks and enhance professional practices concerning documentation, reviews, checking and authentication.
- **Continuing Professional Development:** Policies and procedures must support registrants in meeting continuing professional development requirements, with individual compliance remaining the registrant's responsibility.

APEGS will be conducting audits and practice reviews to foster continuous improvement and ensure public protection. The audits are based on risk assessment with outcomes ranging from no findings to minor or major non-conformances, necessitating corrective action plans to address identified gaps. Firms are required to comply with audits and maintain up-to-date information.

When will this change occur?

Various factors influence when and how the new approach is implemented, including feedback from interested parties, council approvals, IT system capabilities and legislative changes.

APEGS is aiming for voluntary implementation in 2025 with mandatory implementation in 2026 to allow for feedback and adjustments.

Why regulate firms this way?

This new approach ensures a minimum level of practice through quality management and holds firms responsible for their decisions, aligning the obligations of firms with those of individual registrants.

The approach is a more transparent way to regulate, with APEGS setting clear expectations and providing relevant information to interest holders.

It also allows firms to be better equipped to mitigate risks, by addressing common complaints related to breaches of ethics, professional misconduct and quality issues.

Questions?

APEGS invites ongoing dialogue and engagement.

For inquiries or comments, email corporate-practice@apegs.ca, with "Regulation of Firms" in the title.



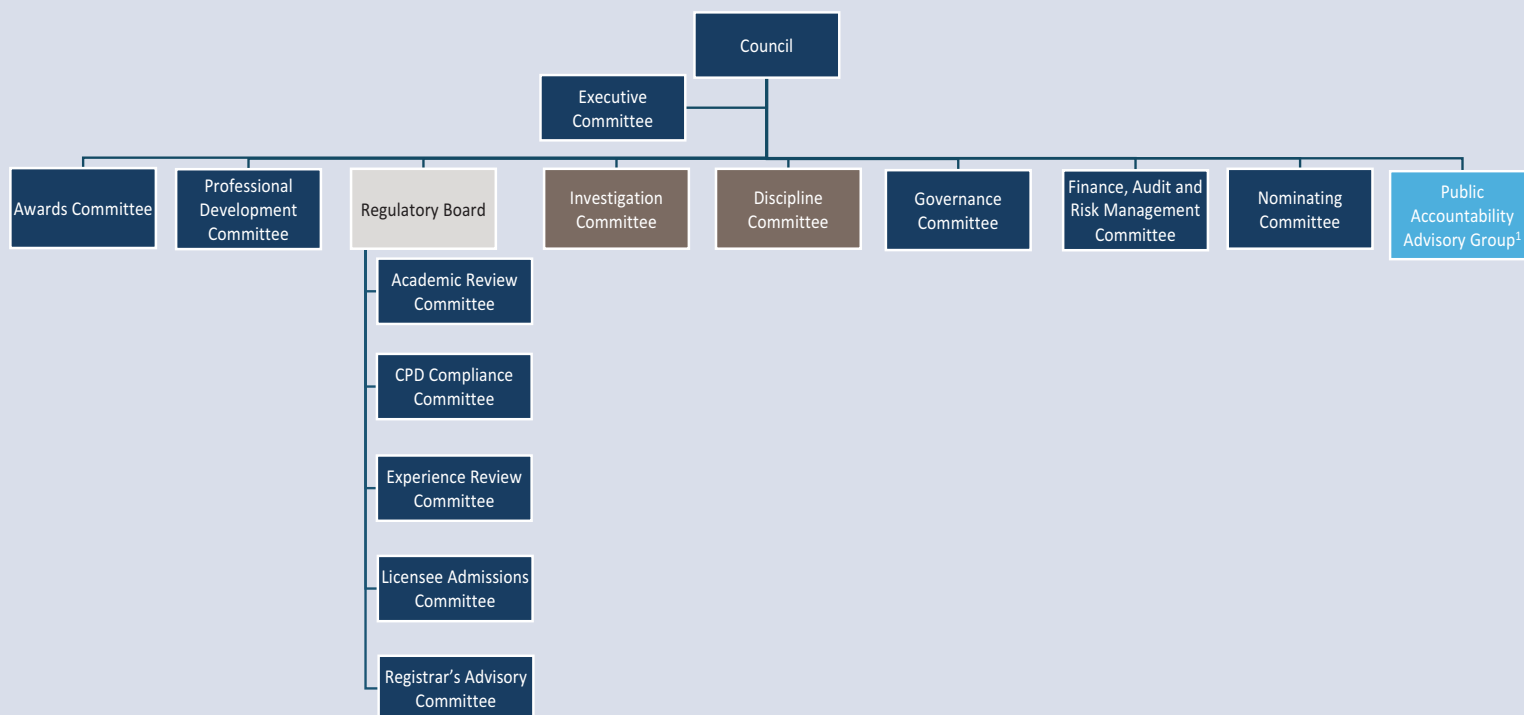
Governance Continuum

We continue to evolve APEGS' governance structure to ensure lines of sight and transparency between Council direction and the work of the committee is clearer. The goals in realigning governing committees are to minimize redundancy in decisions, better manage the flow and timing of information and improve transparency.

In 2023, work was done to distinguish committees as either operational or governing and align them appropriately. We introduced our observations and recommendations at the September volunteer event in Regina, received feedback and incorporated them into the next iteration. Progress continued throughout 2023 with amending committee terms of reference and establishing composition to begin after the 2024 Annual Meeting.

As a result, after the 2024 Annual Meeting, the Governance Board and Professionalism Board were stood down, the Environment and Sustainability and Equity and Diversity Committees were merged to create a Public Accountability Advisory Group and the Governance Committee was formed. The committees that once reported to the Governance or Professionalism Boards now report to Council.

We are continuing to review the best approach to the Professional Development and Awards Committees and for the work of the Regulatory Board and its associated Committees. We anticipate the next phase to be worked through in 2024 and implemented late in 2024. This phased-in approach aligns with the evolving clarity regarding the roles and responsibilities of the Council, Executive Director and Registrar and volunteers.



¹ Public Accountability Advisory Group includes the purpose of the Equity and Diversity and Environment and Sustainability Committee

Member Profile



Melissa Nizinkevich

What is your personal background (hometown, schools, family, etc.)?

I grew up on a farm outside of Kenaston, SK, with my three older siblings. I attended Kenaston School from K to Grade 12, graduating in 2006. I like to joke. I spent the majority of my time outside and only came in to sleep and eat, exploring the many acres around me.

Why did you choose geoscience and what is your area of specialty?

I have many memories as a young kid cracking open rocks on an old anvil we had in the shop. It was a running joke in the family that I would one day be a geologist. I ended up taking an elective geology class in high school and was hooked! At the beginning, I knew I wanted my career to take me to remote places and explore a lot of untouched areas within hard rock exploration.

Where and when did you study geoscience/get your degree and how would you describe your experience?

I attended the University of Saskatchewan from 2006- 2010 with the set goal of getting my geology degree. I had spent the summer working for U of S Crop Science and was intrigued by the idea of a career in agronomy, however, I stuck with geology. I had a great experience at the U of S and the programs were still relatively small. I learned a lot, had a lot of fun and made some great memories.

What jobs/roles have you held as a geoscientist?

I worked for APEX Geoscience Ltd. during my undergrad and post graduate as an exploration GIT. Working with them allowed me to see some amazing places in Canada and also overseas in Australia. I returned home and worked with Golden Band Resources as a mine GIT in Northern Saskatchewan. This role provided valuable experience into the mining industry. I then worked as a Mine Geologist in the potash sector with Agrium until 2021, allowing me to settle down and start a family. I recently made the switch back into the hard rock industry working for Foran Mining in 2022. I am now in a new role as an Exploration Environment & Permitting Specialist and have been enjoying the new experience being involved with environmental work and community engagement.

What have you appreciated about your career opportunities and experiences?

The people, hands down! I've met and stayed in touch with amazing people along the way who have helped me grow professionally and personally. I have also had the opportunity to visit and see many neat places and got to spend time in nature exploring (what I would be doing in my free time if I wasn't at work). Rotation work had also allowed me to do some neat stuff on my time off, further exploring and travelling.

Who has inspired or mentored you in your career? What insight or wisdom did they impart?

That's a tough question as so many people come to mind! I had a really great mentor, Rob L'Hereux, very early in my career who taught me not only a lot of great technical information but also some of the ins and outs of the industry that I carried through with me to this day. The world of exploration does have its challenges, so it was really important for me to have that positive influence and foundation right from the start. I also have to give a shout-out to Terry Croteau who had a similar impact on me when it came to the mining industry and setting me up for success. There were countless other folks along the way and each one had something different to share. I appreciate the fact I had great mentors in my career.

What activities or interests do you enjoy outside of work?

I live on an acreage outside of Saskatoon with my husband and two daughters. I enjoy spending time with them going on all kinds of adventures (collecting copious amounts of insects for my oldest). I am also an avid motorcyclist and a motorcycle instructor with the Saskatchewan Safety Council, where we set people up for a safe experience in the graduated rider program.



2024 APEGS Awards

APEGS celebrated the award recipients listed below with a banquet and ceremony on March 7, 2024 as part of Engineering and Geoscience Week. APEGS Awards recognize professional excellence and showcase exemplary competence and conduct to promote awareness of the role of APEGS in protecting the public and in fostering professional excellence among members. To view the video of each recipient, visit apegs.ca under Members/Honours & Awards.

Recipients of 2024 APEGS Awards

Brian Eckel Distinguished Service Award

Dr. Terrance Fonstad, P.Eng., P. Ag., FEC, FGC (Hon.)

Outstanding Achievement Award

Dr. Philip LePoudre, P.Eng.

McCannel Award

Dr. Sumith Khanda, P.Eng.

Exceptional Engineering/Geoscience Project Award

RMD Engineering – Emergency Use Ventilators

Environmental Excellence Award

Aquistore by Petroleum Research Centre

Promising Member Award

Jenae Nixon, P.Eng.

Friend of the Professions Award

Dr. Dominique Turcotte

Upon recommendation from APEGS in honour of exceptional contributions to the engineering or geoscience profession, the following members received a certificate of fellowship and the privilege of using the designation of fellow or honorary fellow of Engineers Canada, FEC or FEC (Hon.), or the privilege of using the designation of fellow or honorary fellow of Geoscientists Canada, FGC or FGC (Hon.):

- Rajeev Chadha, P.Eng.
- Trodhie Irlandez, P.Eng.
- Brett LaRoche, P.Eng.
- Mehrnoosh Janbakhsh, P.Eng.
- Venkatesh Meda, P.Eng.
- Jafar Soltan Mohammadzadeh, P.Eng.
- Debbie Shewfelt, P.Geo.



Brian Eckel Distinguished Service Award

Recognizes outstanding contributions in service to the community, APEGS and technical and learned organizations as an inspiration to other engineering and geoscience professionals. It honours distinctive and outstanding achievements in professional and technical fields. This award is given only to those who truly exemplify the best standards in engineering and geoscience in Saskatchewan.

**DR. TERRY FONSTAD,
P.ENG., P.AG., FEC, FGC (HON.)**



Dr. Terry Fonstad, P.Eng.,
P.Ag., FEC, FGC (Hon.)

Terry was raised south of Saskatoon and attended high school in Outlook, SK. After graduation he moved to Saskatoon and worked in construction for several years. In the fall of 1984, Terry enrolled in the College of Engineering at the University of Saskatchewan and graduated with a degree in Agricultural Engineering in the spring of 1988. He worked for UMA Engineering in the summers and continued full time after graduation.

In the fall of 1989, Terry married Sandra and they developed an acreage southeast of Saskatoon. Consulting work related to environmental engineering led Terry to pursue graduate classes at the University of Saskatchewan and resulted in him receiving an M.Sc. degree in 1996. During this time, Dr. Ernie Barber inquired as to Terry's interest in continuing his environmental-related research and taking a faculty position in the College of Engineering. The offer allowed Terry to complete his PhD while a faculty member. Terry joined the university in July 1996 and eventually completed his PhD in 2004. During this time he developed a research program that focused on solutions for environmental protection supporting animal agriculture.

In 2002, Terry was asked to consider serving his community on municipal government and served as the councillor of Division 3 of the RM of Blucher from 2002 to 2017. During this time, he also served two terms on APEGS' council from 2008-2011 and 2011-2014. In 2017, Terry was asked to serve the College of Engineering as the Associate Dean Research as well as serve on the executive of APEGS. He accepted both opportunities and served as APEGS' President for 2019-2020. In 2022, Terry was asked to serve the University of Saskatchewan in his current role as an Associate Vice-President Research.



Outstanding Achievement Award

Honours members who show technical excellence and achievement in engineering and/or geoscience in Saskatchewan.

DR. PHILIP LEPOUDRE, P.ENG.



Dr. Philip LePoudre, P.Eng.

Dr. Philip LePoudre is the Chief Technology Officer at Nortek Data Center Cooling and the innovation lead for StatePoint Liquid Cooling Technology at Nortek. His work led to the commercial launch of a completely new membrane evaporative cooling technology for data centres with industry-leading power and water usage efficiency. He has been part of the Nortek R&D Center in Saskatoon since 2011 and enjoys working with the team on further advancements in cooling and air treatment technologies.

Philip has patents granted or pending on more than 20 inventions related to membrane exchanger design, liquid desiccant conditioning systems and evaporative cooling.

Previously Philip worked as a professional research associate and lecturer at the University of Saskatchewan where he taught a variety of courses in engineering and participated in research on liquid-to-air membrane energy exchangers.

Philip has a PhD from Florida State University in Applied and Computational Mathematics specializing in computational aeroacoustics of turbofan engine noise. He also has an M.Sc. and B.Eng. from the University of Saskatchewan in Mechanical Engineering with research in computational fluid dynamics. He is a member of APEGS and ASHRAE.

Philip grew up in rural Saskatchewan and continues to be involved in the family farm. He enjoys spending time at the lake with his kids, sailing, fishing and experiencing the outdoors. His hobbies include traditional woodworking and metalworking, fixing vehicles, reading, writing and playing guitar.



McCannel Award

Honours service to APEGS and to the Professions as a whole

DR. SUMITH KAHANDA, P.ENG.



Dr. Sumith Kahanda, P.Eng.

Dr. Sumith Kahanda is a distinguished leader and engineer with expertise in project management and organizational leadership. Currently serving as the Acting Manager at SaskWater, Sumith provides strategic leadership for capital projects. Two of his projects received the ACEC-SK Award of Excellence and Pinnacle Award in 2018 and 2022, showcasing his exceptional management skills.

As the president and member leader at ASQ Saskatchewan Section, Sumith contributed actively to the organization's strategic vision, earning the ASQ Gold Medal for Excellence in 2021. His tenure as the president of the Saskatoon Engineering Society demonstrated foresight and strategic planning, adding significant value to SES members and fostering collaborations with organizations supporting international graduate engineers.

Academically, Sumith holds a Ph.D. in Agricultural and Bio-Resources Engineering, an M.Sc. in Water Resource Engineering and a B.Sc. in Agriculture (Major: Agricultural Engineering). Additionally, he obtained a diploma in Supply Chain Management and a certificate in Leadership and Management from Harvard Business School online. His professional designations, including P.Eng., PMP and CSSGB, underscore his commitment to excellence and continuous professional development.

Beyond his professional achievements, Sumith is a community advocate, recognized with the Queen Elizabeth II Platinum Jubilee Medal. His multifaceted contributions include supporting community members, international students, immigrants, engineers and quality professionals. His mentorship program initiated in 2020 has aided over 200 engineers, demonstrating his commitment to community welfare.

Actively volunteering for various organizations, Sumith's skills and knowledge have enhanced stakeholder experiences. Acknowledged with the "Top 25 Immigrant Award" in 2010, his positive demeanour, leadership and unwavering commitment to community service make him a respected mentor and role model among engineers.

As a self-made mentor and community leader, Sumith continues to contribute numerous volunteer hours. His commitment to excellence, collaboration and positive impact remains unwavering, solidifying his place as a respected leader in the community.



Exceptional Engineering/ Geoscience Project Award

Recognizes accomplishments in engineering and/or geoscience.

**RMD ENGINEERING INC.
EMERGENCY USE VENTILATORS**

RMD Engineering Inc.
Emergency Use Ventilators



As the COVID-19 pandemic started overwhelming health-care systems around the world in March 2020, University of Saskatchewan (USask) College of Engineering alum Jim Boire (BE'96) decided that designing and manufacturing an emergency use ventilator (EUV) was simply the right thing to do and that's what he and his team did. In 42 days the company had developed and achieved third-party approval and submitted to the federal government for approval and within nine months their ventilator received COVID-19 Medical Device Authorization from Health Canada.

Along the way, RMD Engineering's subsidiary, One Health Medical Technologies, became Saskatchewan's first licensed medical device manufacturer. The team practised agile project management, collaboration and mindfulness and open, honest and respectful communication in order to pull this off. The team still continues to practise these and continues to grow, having this project rank up there with the greatest thing RMD has accomplished in its 21 years.



Environmental Excellence Award

Recognizes the exceptional achievements by an individual or team related to environmental protection and preservation.

PETROLEUM TECHNOLOGY RESEARCH CENTRE INC. AQUISTORE



Petroleum Technology
Research Centre Inc.

Petroleum Technology Research Centre's Aquistore project is the dedicated CO₂ storage component of SaskPower's Boundary Dam Carbon Capture and Storage (CCS) facility. The site, located just three kilometres from Boundary Dam power station, is the most comprehensive field laboratory in the world for the measurement, monitoring and verification of stored CO₂. Since 2015, Aquistore has been injecting CO₂ to a depth of 3.3 km into the Deadwood Formation, a deep saline aquifer. The program has examined and deployed over 30 monitoring technologies to assure the safety of storage. Aquistore has injected and safely stored just under 600,000 tonnes of CO₂, equivalent to taking 150,000 cars off the road for one year.

The site has both an injection and an observation well, drilled to depths of 3.4 km. Other technologies deployed to assure the safety of storage include down-well pressure and temperature sensors, an array of 630 geophones to image the CO₂ deep underground, the newest fibre optic technologies (some of which have never before been used to monitor CO₂) and surface deformation monitoring.

Research has also included measuring of groundwater and soil to assure CO₂ has remained underground and seismographs to monitor for seismicity caused by injection (none has been recorded).

CCS has become one of the technological options for reducing emissions from large emitters. Aquistore has seen increasing international and national interest, with researchers from across the world accessing the rich datasets from nine years of operations. Aquistore has also helped PTRC develop a CCS course that has been accessed by companies across different industries. The project is thankful for its various partners and sponsors, including the governments of Saskatchewan and Canada, SaskPower, scientists that comprise the program's Science and Engineering Research Committee (SERC) and companies from around the world that support the program.



Promising Member Award

Recognizes exceptional achievements in the early stages of a professional member's career in Saskatchewan.

JENAE NIXON, P.ENG.



Jenae Nixon, P.Eng.

Jenae Nixon completed her Bachelor of Science in Civil Engineering (B.Sc.) in 2016 and Master of Engineering (M.Eng.) in 2021, both at the University of Saskatchewan. Currently, Jenae is a Geotechnical Engineer at Water Security Agency, having worked in the consulting industry previously. In university, Jenae became interested in geotechnical engineering while on the inaugural Dr. Jack Mollard Sensing the Earth Tour.

Throughout her career Jenae has had the opportunity to enjoy the scenery of the vast province, working on a variety of infrastructure including highways, railways and dams. In her current role, Jenae's primary focus is on the monitoring and assessment of Rafferty and Grant Devine Dams.

Jenae enjoys volunteering her time to the profession, currently serving as Chair of the Regina Geotechnical Group and as a member of the APEGS Licensee Admissions Committee. Growing up in Kronau, Jenae became an avid curler. She currently resides in Weyburn with her husband and daughter, where she also enjoys gardening, crocheting and camping.



Friend Of The Professions Award

Recognizes exceptional achievements or unique contributions by a non-member in the promotion of the professions.

DR. DOMINIQUE TURCOTTE



Dr. Dominique Turcotte

Dr. Dominique Turcotte is a Lead Environmental Protection Officer with the Ministry of Environment. She started her career as a researcher studying environmental contamination, protection and remediation. Her research expertise in ecotoxicology and environmental chemistry has been centred on studying the fate and effects of xenobiotics in fish, understanding genetic adaptations in fish populations exposed to contaminants and developing analytical methods to detect metabolites produced by fish exposed to hydrocarbons.

In her current role, her responsibilities involve developing a new code chapter for compost facilities, co-ordinating solid-waste management topics within the ministry and overseeing permitting and environmental compliance of industrial facilities. As a former member of the provincial spill response program, she has been exposed to a variety of environmental emergency scenarios such as transportation and fixed-facility incidents. Additionally, she represents Saskatchewan as a member of the CCME Contaminated Sites Working Group, which focuses on developing evidence-based environmental quality criteria. Dominique is always happy to work with engineers and geoscientists.

Call for APEGS Awards Nominations

Engineering and geoscience professionals do great work that benefits everyone in the province. Help APEGS recognize and foster professional excellence and showcase exemplary competence and conduct by nominating a friend, colleague, employee or client for the 2025 APEGS Awards.

APEGS celebrates award recipients with a banquet, which will be on **Thursday, March 6, 2025 in Saskatoon** as part of Engineering and Geoscience Week.

We are seeking nominations for the following awards:

Brian Eckel Distinguished Service Award

Outstanding Achievement Award

McCannel Award

Exceptional Engineering/Geoscience Project Award

Environmental Excellence Award

Promising Member Award

Friend of the Professions Service Award

If you know someone who has done something outstanding, this year or over the course of their career, please make sure we hear about it.

Learn more about each award at apegs.ca under Members/Honours & Awards.

Nomination is quick and easy!

Complete the form at apegs.ca under Members/Honours & Awards.

Email the form to apegs@apegs.ca.

The deadline to submit nominations for 2025 is October 1, 2024.

2024 APEGS Salary Survey Summary Results

The Association of Professional Engineers and Geoscientists of Saskatchewan (APEGS) contacted 7,068 Professional Engineers, Professional Geoscientists, Engineers-in-Training, Geoscientists-in-Training and Licensees living in Saskatchewan. A total of 1,402 members completed the survey, representing a 19.9 per cent response rate. Surveys were conducted between March 7 and May 6, 2024 and salaries reported were as of December 31, 2023. Insightrix Research Inc. compiled and tabulated all results. The detailed report, which includes analysis by gender, can be found on the APEGS website under the 'About' menu.

Professional designation (P.Eng. and/or P.Geo.), supervision scope and accident and health hazards are the top three predictors of salary.

The work of engineering and geoscience professionals contributes to the public well-being and economic stability of Saskatchewan. The goal of providing current market salary information for engineers and geoscientists is to help ensure that the province retains proficient and competent services in engineering and geoscience. Making this information available provides guidance to both employers and employees to assess current compensation for professionals at various levels of education, experience and responsibility. The salary survey also has the additional benefit of providing students, career counsellors and other interested persons with information on employment in the engineering and geoscience professions in Saskatchewan.

Annual Salary by Final Year of Graduation (B.Sc.)

	COUNT	COLUMN N %	MEAN	PERCENTILE 05	PERCENTILE 25	MEDIAN	PERCENTILE 75	PERCENTILE 95
1986 & Prior†								
1987	10	0.8%	\$171,971	\$80,000	\$163,420	\$180,000	\$209,500	\$216,195
1988	11	0.8%	\$166,787	\$93,600	\$125,000	\$156,000	\$193,310	\$250,000
1989†								
1990†								
1991†								
1992†								
1993	10	0.8%	\$168,655	\$116,000	\$139,296	\$162,500	\$179,011	\$248,000
1994	15	1.1%	\$160,521	\$76,000	\$127,148	\$148,664	\$175,000	\$330,000
1995	16	1.2%	\$178,077	\$123,000	\$132,500	\$160,500	\$225,074	\$275,000
1996	17	1.3%	\$166,470	\$72,000	\$140,000	\$172,000	\$189,470	\$276,000
1997	12	0.9%	\$167,553	\$92,400	\$128,000	\$153,000	\$177,799	\$387,000
1998	14	1.1%	\$153,699	\$84,000	\$124,000	\$150,500	\$180,000	\$239,000
1999	28	2.1%	\$150,631	\$85,000	\$121,250	\$137,750	\$162,313	\$230,000
2000	19	1.4%	\$139,396	\$35,120	\$98,800	\$126,058	\$180,000	\$285,000
2001	30	2.3%	\$153,047	\$87,600	\$122,000	\$144,000	\$175,500	\$264,000
2002	35	2.7%	\$149,888	\$80,000	\$118,800	\$140,550	\$170,000	\$250,000
2003	26	2.0%	\$148,367	\$106,080	\$120,000	\$137,000	\$172,000	\$220,000
2004	32	2.4%	\$132,407	\$55,000	\$97,200	\$131,500	\$162,375	\$220,000
2005	42	3.2%	\$146,534	\$83,000	\$119,000	\$146,000	\$173,000	\$212,223
2006	37	2.8%	\$139,746	\$86,400	\$115,000	\$137,000	\$165,000	\$196,000
2007	49	3.7%	\$135,167	\$79,018	\$114,660	\$132,500	\$160,000	\$200,075
2008	52	3.9%	\$137,628	\$84,000	\$114,550	\$135,075	\$157,500	\$202,000
2009	55	4.2%	\$132,615	\$81,000	\$106,000	\$133,500	\$150,000	\$204,000
2010	49	3.7%	\$131,112	\$68,000	\$108,000	\$126,000	\$155,000	\$200,000
2011	50	3.8%	\$119,175	\$57,500	\$95,000	\$115,750	\$140,000	\$192,600
2012	64	4.9%	\$118,997	\$85,629	\$102,775	\$118,250	\$135,000	\$158,000
2013	59	4.5%	\$118,133	\$85,000	\$105,000	\$115,749	\$132,000	\$155,000
2014	48	3.6%	\$115,369	\$79,014	\$97,347	\$111,000	\$133,500	\$158,000
2015	56	4.3%	\$105,918	\$70,000	\$90,000	\$100,000	\$115,375	\$150,000
2016	44	3.3%	\$101,790	\$71,000	\$83,650	\$96,200	\$118,333	\$150,000

2017	63	4.8%	\$93,907	\$69,975	\$81,150	\$90,420	\$104,000	\$130,000
2018	64	4.9%	\$89,062	\$65,000	\$82,425	\$88,050	\$96,750	\$123,000
2019	60	4.6%	\$89,795	\$65,215	\$79,850	\$89,450	\$97,800	\$119,900
2020	47	3.6%	\$83,989	\$69,600	\$73,000	\$83,100	\$92,000	\$105,700
2021	57	4.3%	\$77,316	\$60,114	\$69,600	\$74,077	\$80,000	\$99,000
2022	45	3.4%	\$77,665	\$66,000	\$69,396	\$76,872	\$84,500	\$95,000
2023	40	3.0%	\$76,300	\$62,480	\$67,085	\$75,000	\$80,113	\$100,690

†Not available due to reporting rules (insufficient data)

Annual Salary by Designation

	COUNT	COLUMN N %	MEAN	PERCENTILE 05	PERCENTILE 25	MEDIAN	PERCENTILE 75	PERCENTILE 95
P.Eng.	876	63.7%	\$135,004	\$85,000	\$105,000	\$128,000	\$156,134	\$215,000
P.Geo.	68	4.9%	\$144,508	\$85,500	\$116,500	\$140,000	\$165,000	\$226,000
P.Eng. and P.Geo†								
Engineering Licence	14	1.0%	\$130,836	\$85,820	\$113,000	\$130,000	\$140,000	\$211,000
Engineer-in-Training	372	27.1%	\$83,693	\$63,300	\$71,126	\$80,000	\$92,000	\$120,000
Geoscientist-in-Training	33	2.4%	\$91,410	\$61,000	\$79,400	\$90,000	\$100,000	\$130,000
Geo Licensee†								

†Not available due to reporting rules (insufficient data)

Annual Salary by Discipline

	COUNT	COLUMN N %	MEAN	PERCENTILE 05	PERCENTILE 25	MEDIAN	PERCENTILE 75	PERCENTILE 95
Agriculture and Forestry	33	2.4%	\$104,956	\$58,000	\$83,086	\$90,000	\$130,746	\$172,000
Biological and Biomedical†								
Chem./Ceramic/Metallurgical	64	4.7%	\$125,397	\$73,500	\$94,375	\$122,500	\$145,000	\$229,000
Civil	301	21.9%	\$114,016	\$69,300	\$85,000	\$105,000	\$135,000	\$188,831
Electrical/Eng. Physics	213	15.5%	\$126,507	\$68,640	\$90,500	\$120,000	\$154,000	\$190,120
Environmental	72	5.2%	\$106,899	\$65,000	\$84,522	\$105,000	\$121,976	\$172,070
Geo., Mining, Petro. Eng.	131	9.5%	\$135,552	\$75,000	\$98,389	\$128,000	\$160,368	\$212,000
Geosciences	80	5.8%	\$130,995	\$76,625	\$98,000	\$124,000	\$150,750	\$190,000
Mechanical and Industrial	322	23.4%	\$118,414	\$67,000	\$86,500	\$111,000	\$141,400	\$205,000
Software Engineering	33	2.4%	\$111,099	\$70,800	\$80,000	\$103,082	\$140,000	\$150,000
Other	125	9.1%	\$122,099	\$69,401	\$91,719	\$112,000	\$143,000	\$183,000

†Not available due to reporting rules (insufficient data)

Annual Salary by Function

	COUNT	COLUMN N %	MEAN	PERCENTILE 05	PERCENTILE 25	MEDIAN	PERCENTILE 75	PERCENTILE 95
Corporate Mgmt.	128	9.3%	\$176,275	\$110,000	\$138,635	\$168,720	\$200,000	\$285,000
Project/ Operations Mgmt.	430	31.3%	\$121,931	\$71,474	\$90,500	\$116,000	\$143,000	\$200,000
Project Administration	31	2.3%	\$113,333	\$80,000	\$89,000	\$107,000	\$130,000	\$171,000
Design	376	27.3%	\$102,398	\$67,000	\$78,000	\$94,060	\$118,725	\$164,000
Research/Planning	58	4.2%	\$109,425	\$49,812	\$84,948	\$100,500	\$140,550	\$180,000
Inspection/Quality/Resident	19	1.4%	\$104,772	\$63,000	\$78,000	\$99,500	\$120,000	\$182,455
Operating /Maintenance	141	10.3%	\$124,935	\$72,014	\$97,000	\$124,000	\$146,200	\$189,470
Teaching	22	1.6%	\$155,219	\$93,000	\$105,598	\$140,529	\$201,000	\$233,000
Marketing/Sales	12	0.9%	\$113,128	\$50,883	\$76,750	\$107,500	\$144,300	\$230,000
Reg. Approvals/Enforcement	40	2.9%	\$108,058	\$72,932	\$92,750	\$105,500	\$120,655	\$154,250
Exploration	57	4.1%	\$121,873	\$73,000	\$90,000	\$114,000	\$145,000	\$196,000
Other	61	4.4%	\$113,872	\$63,000	\$82,160	\$106,000	\$140,000	\$192,000

Annual Salary by Industry

	COUNT	COLUMN N %	MEAN	PERCENTILE 05	PERCENTILE 25	MEDIAN	PERCENTILE 75	PERCENTILE 95
Consulting Service	323	23.5%	\$111,039	\$65,325	\$81,000	\$100,000	\$132,400	\$195,000
Resource Ind. Oil & Gas	54	3.9%	\$122,810	\$68,680	\$96,432	\$115,550	\$150,000	\$200,000
Resource Ind. Except Oil & Gas	254	18.5%	\$141,722	\$85,000	\$106,000	\$140,000	\$163,000	\$225,000
Procurement/Construction	110	8.0%	\$111,454	\$67,000	\$82,500	\$102,250	\$130,000	\$202,730
Manufacturing Durables	143	10.4%	\$105,881	\$68,310	\$78,000	\$96,000	\$124,000	\$175,000
Manufacturing Non-Durables	51	3.7%	\$135,690	\$80,000	\$105,000	\$130,444	\$158,000	\$238,000
Service For Profit	18	1.3%	\$116,030	\$50,883	\$87,500	\$111,128	\$140,000	\$216,550
Service Not For Profit	123	8.9%	\$111,365	\$72,600	\$90,000	\$110,000	\$124,000	\$161,000
Utilities	197	14.3%	\$129,307	\$72,014	\$95,000	\$125,000	\$154,799	\$220,000
Educational Services	34	2.5%	\$137,430	\$60,000	\$99,998	\$118,003	\$190,000	\$233,000
Agriculture and Forestry	29	2.1%	\$98,821	\$58,000	\$79,000	\$87,100	\$110,000	\$160,000
Other	39	2.8%	\$111,155	\$63,000	\$82,458	\$100,000	\$125,355	\$207,000

Annual Salary by Sector

	COUNT	COLUMN N %	MEAN	PERCENTILE 05	PERCENTILE 25	MEDIAN	PERCENTILE 75	PERCENTILE 95
Public Sector	430		\$120,775	\$72,000	\$91,448	\$113,175	\$140,307	\$193,112
Private Sector	935		\$120,435	\$67,744	\$86,783	\$111,000	\$145,000	\$208,000

Total Salary (full-time positions)

	COUNT	COLUMN N %	MEAN	PERCENTILE 05	PERCENTILE 25	MEDIAN	PERCENTILE 75	PERCENTILE 95
Base Salary			\$120,690	\$68,680	\$88,000	\$112,000	\$144,000	\$204,000
Salary incl. bonus	1,375		\$147,519	\$71,684	\$95,000	\$125,295	\$174,300	\$302,000

Salary Changes (full-time positions) (not including bonus, not all survey years listed)

	MEDIAN SALARY	% INCREASE	MEAN SALARY	% INCREASE
2015	\$97,000	2.65%	\$105,111	2.57%
2016	\$96,000	-1.03%	\$104,628	-0.46%
2017	\$97,000	1.04%	\$107,130	2.39%
2018	\$96,485	-0.53%	\$104,743	-2.23%
2019	\$97,500	1.05%	\$107,287	2.43%
2020	\$99,265	1.81%	\$107,298	0.00%
2021	\$98,022	-1.25%	\$108,008	0.65%
2022	\$104,000	6.10%	\$112,940	4.57%
2023	\$105,000	0.96%	\$114,143	1.07%
2024	\$112,000	6.67%	\$120,690	5.74%

Regression Analysis

A lasso regression model was used to establish a framework for predicting salaries for engineers and geoscientists working in different industries. This process was used to:

- Identify how closely factors are associated with salaries
- Identify Boolean components (such as receipt of professional designation) influencing salary
- Create a linear formula that effectively predicts salaries while minimizing model overfitting

The model explains about 60 per cent (60.3%) of variance in salary. A formula was produced which members of APEGS can easily use to estimate their salary.

FACTOR	COEFFICIENT
(Constant)	\$ 32206.06
Duties (A)	\$ 135.46
Education (B)	\$ 169.87
Experience (C)	\$ 434.83
Recommendations (D)	\$ 53.05
Supervision Received (E)	\$ 63.14
Supervision Scope (G)	\$ 933.48
Job Environment (I)*	\$ 306.50
Absence from Base of Operations (J)	\$ 340.68
Accident and Health Hazards (K)	\$ 460.92
Professional Designation(s)	\$ 8867.26

To calculate the approximate projected salary, input the points for each variable in the following formula:

Formula for expected salary (SE) without bonus:

SE = 32,206+ 135*A + 170*B + 435*C + 53*D + 63*E + 933*G – 307*I + 341*J + 461*K

Add \$8,867 if you have acquired professional status within your field (P.Eng. and/or P.Geo.)

Additional Notes

- Use of professional seal was excluded from the model due to this factor being not applicable for some respondents.
- The lasso algorithm determined that the predictor leadership authority does not contribute significantly to the model's predictive power and has been excluded.
- 10-fold cross validation was used to select a lambda value for the lasso model.
- Higher ratings for factors with an asterisk (*) are associated with lower wages.

News From the Field



Automation and AI in mining

CBC Saskatchewan – Nutrien wants to eventually deploy more automation, with all six of Nutrien's underground mines becoming either fully autonomous or fully tele-remote.

This intention was shared by the president and CEO of Nutrien, Ken Seitz, with analysts on an earnings call in early May.

“Can we take those learnings, those automation learnings, to other parts of our business? I mean, absolutely,” he said.

“As we look to mechanize and automate even on some of our surface applications, those technologies, we can mobilize them into other corners of our business.”

He also shared that Nutrien is testing artificial intelligence technology, particularly in the area of safety. The company is using AI to sift through decades of safety data, Seitz said.

“It’s a root cause analysis on all of our potential for serious injuries,” said Seitz, adding it has revealed “extraordinary” information on some high-risk areas for the company.

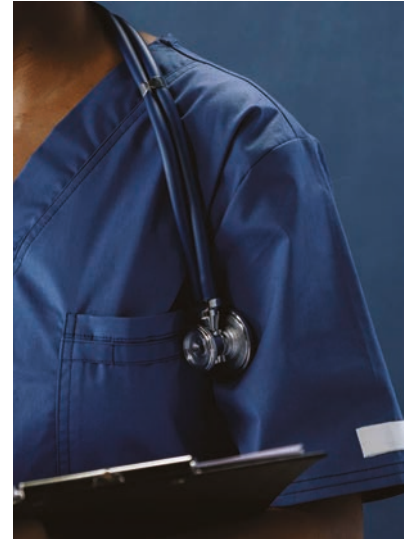
In the future, Seitz sees more potential applications for AI in the business, such as in agronomic services.

“It’s early days for us, but ... we definitely have test cases,” he said.

Nutrien’s six mines in Saskatchewan are Allan, Rocanville, Vanscoy, Lanigan and Patience Lake as well as Cory, which is near Saskatoon.

Hearing focuses on professional’s freedom of expression

SaskToday – The outcome of a College of Registered Nurses of Saskatchewan (CRNS) hearing benefits more than nurses, according to the Justice Centre for Constitutional Freedoms, a group who funds a network of lawyers defending constitutional freedoms in courtrooms and before tribunals across Canada.



The CRNS ruling in favour of registered nurse Leah McInnes vindicates a registered nurse’s right to professionally advocate for medical ethics and evidence-based health policy, the group said. In its Jan. 12 decision, the CRNS said the case against McInnes shouldn’t have proceeded to a hearing. The Discipline Committee of the College accepted the evidence presented to them and found that McInnes had, in no way, misinformed the public.

“This is a significant victory for free expression and democratic participation,” said John Carpay, president of the Justice Centre.

“Nurses, doctors, psychologists, teachers, lawyers, engineers and all Canadians who work in a regulated profession have the freedom to advocate for their beliefs and should not face threats from their own professional association or professional regulator.”

McInnes sees this as a victory for free speech in the medical community which she says will only lead to better outcomes.

“I very much value the right of my colleagues to express opinions different than mine and support them in their endeavours to seek change in health care and government policy they perceive to be in the public interest,” said McInnes.

“I’m grateful that the CRNS Discipline Committee recognized my right to do the same, as it’s only in the collection of our opinions that the public truly benefits.”

The CRNS charged McInnes with spreading “misinformation” after she expressed concern about vaccine mandates. McInnes, who has been an RN since 2013, supported vaccines as an important tool in COVID-management efforts while pointing to emerging scientific evidence regarding viral loads and transmission, showing that COVID vaccines did not eliminate transmission. McInnes opposed vaccine mandates as a violation of basic ethical principles of autonomy and informed and voluntary consent of each patient.

The charges resulted from a complaint by another registered nurse. The Investigation Committee of the CRNS’ took issue with McInnes’ advocacy, including her use of the common term “vaccine mandate,” saying it amounted to “misinformation.”

When McInnes began advocating, there were public conversations about implementing a vaccine mandate, but none yet existed. A short time later, the Saskatchewan government imposed a vaccine mandate. The charges included one that McInnes knowingly spread misinformation on the basis that, purportedly, no “vaccination mandates” had ever been implemented.

“Ms. McInnes used the term ‘vaccine mandate’ just as nearly everyone else did in public discourse, including the Toronto Star, the CBC, CTV, the Saskatoon Star Phoenix, CKOM, the Saskatchewan Union of Nurses, academia, Occupational Health and Safety, Saskatchewan Health Authority, the Saskatchewan NDP and governments,” stated Andre Memauri, co-counsel for McInnes.

The Investigation Committee also alleged that McInnes knowingly spread misinformation about COVID vaccines. McInnes posted that vaccines did not provide sterilizing immunity, meaning vaccinated people could contract and transmit the virus. During the hearings, experts, including the Investigation Committee’s own expert, testified that vaccines do not provide sterilizing immunity.

Co-counsel to McInness, Glenn Blackett, said, “The importance of professional freedom of speech and conscience can hardly be overstated. Science, ethics and democracy simply do not operate without freedom to think and speak. If you can’t trust a professional, be it a nurse, doctor or lawyer, to tell you what they think is true, you can’t trust them at all.”

Skating oval fixed

CBC Saskatchewan – The Clarence Downey Speed Skating Oval at Saskatoon’s Gordie Howe Sports Complex could be the first rink in Canada using fibreglass mesh to prevent devastating cracks.

The project was the work of several University of Saskatchewan engineers, dozens of volunteers and a

Russian scientist’s three-decade-old research.

The oval was frozen on top of plastic barriers to protect the running track underneath. Serious cracks started to emerge in 2019. Many cracks were perpendicular to the direction people skated which is normal. Others are in the direction of travel, which is dangerous for skaters.

Early suggestions to mix sawdust with water to stabilize the ice weren’t feasible. Then in 2021, Chris Veeman, a coach with the Saskatoon Lions Speed Skating Club, came across a 1993 paper by an engineering professor in St. Petersburg, Russia, suggesting fibreglass mesh or cloth could help stabilize the ice.

N.K. Vasiliev found the material could increase the flexibility and strength of ice under pressure, according to the peer-reviewed study published in the journal Cold Regions Science and Technology.

Veeman approached fellow speedskater Sean Maw, P.Eng., who is the Huff Chair for Innovative Teaching at the University of Saskatchewan. Maw spoke with engineering lecturer Glyn Kennell, P.Eng., who tasked some first-year students with testing different chemical and physical materials to reinforce ice as part of their coursework.

Fibreglass was the clear winner out of everything tested, Kennell said. Maw said it works similarly to metal rebar in concrete.

Volunteers laid more than 160 metre-wide rolls of mesh in the middle of the oval’s 8,000 square metres of ice for the first time in 2022. After skating on it for a season and a half, Veeman says it’s made a huge difference.

Maw said the findings may come in handy for other public skating areas, backyard rinks and even ice roads.

“The general principle is very interesting for any situation where you don’t want ice to fracture,” he said. “That could be another layer of safety.”



Lawsuit to decarbonize power grid

CTV Regina – The Saskatchewan government’s intent to build more gas-powered electric plants is the focus of a lawsuit by seven individuals plus Climate Justice Saskatoon.

They argue the government’s continued development of fossil fuel electric plants violates people’s Charter rights by exacerbating dangerous climate change.

They’re asking the court to order SaskPower, the Crown Investments Corporation and the Saskatchewan government to prepare plans to decarbonize the electrical grid.

The litigation was heard by the court for the first time in early April when a King’s Bench judge was to rule on whether to grant the Saskatchewan Environmental Society intervener status.

Court will hear from Robert Halliday, P.Eng., a Saskatoon water resource engineer who’s bringing the application on behalf of the environmental society.

“My interest in SaskPower’s generation matters was sharpened by the challenges the organization faced in meeting cooling water demands at the Boundary Dam power station during the 1980s drought,” he wrote in his affidavit before the court.

“That matter was addressed by pumping the Estevan aquifer; 30 years later the aquifer still has not recovered.”

A spokesperson for SaskPower said the company could not comment on the case as it was still before the courts.

A spokesperson for the provincial Ministry of Justice told CTV News the government stands behind its decision to build natural gas-fired power plants.

“This is the most effective way to reduce greenhouse gas emissions in the province without causing undue harm to our people and our economy,” the emailed statement said.

The spokesperson declined to comment further as the matter is before the courts, but he said the province is aware that “similar litigation has been commenced in many places around the world.”



Lake Diefenbaker



Leader-Post/CTV Saskatoon – Premier Scott Moe announced the province is moving on the \$4-billion Lake Diefenbaker Irrigation Project as soon as 2025.

He made the announcement during his address to delegates gathered for the Saskatchewan Association of Rural Municipalities’ annual convention.

The project is one of the province’s largest infrastructure projects in history and was first announced in 2020. It was to be a multi-phase project with provincial-federal collaboration.

Moe said Saskatchewan will go ahead with or without federal input. The province petitioned the Canada Infrastructure Bank for a joint-funding agreement, but the premier said those discussions have not progressed.

“It’s important for us to get started and we were hopeful that we would have a federal partner in starting this project,” he said.

“We cannot wait for the federal government and so we’re going to move forward on our own.”

The province is moving into active planning for Phase 1 beginning immediately.

Engineering, design and consultations with stakeholders will fill the next year, with construction on the first 90,000 acres targeted for 2025, to build out the canal expansion of the Westside project.

Phase 2 will move on to build irrigation capacity at Westside and Phase 3 to the Qu’Appelle South Irrigation Project. The project will span 500,000 acres once completed.

Phase 1 is now costed at \$1.15 billion, up from the \$500 million estimated in 2020. The entire project then was projected at \$4 billion to complete all proposed phases. Moe said that figure was a “rough estimate” put forward by engineers and is likely “substantially more” now, four years later.

“There’s an opportunity for us, rather than do all four phases at once and experience that entire cost at once, to actually build the industry, literally acre by acre,” said Moe.

Without the feds on board, Moe said costs will be shared between the province and individual producers who take part. How those shares will be divided is yet to be decided.

“We’re going to have funds allocated as we go along,” Moe said. “The important thing was to get the project started and then as producers come online, we’ll have a formula ready.”

Meanwhile, the Federation of Sovereign Indigenous Nations (FSIN) says it’s “deeply troubled” by the Saskatchewan government’s failure to consult First Nations about this project, saying that moving ahead raises significant concerns for First Nations’ rights, water security and environmental sustainability. Since the project was first announced, the FSIN says First Nation communities across Saskatchewan have criticized the project because of its potential negative impacts on the environment and the risk of over-allocating this limited natural resource for industrial use in a time of growing scarcity.

“The current state of water in Saskatchewan is dire, with record low water levels in 2023 and projections for 2024 looking even worse,” said FSIN Chief Bobby Cameron. “Responsible use of our collective water resources is paramount.”

FSIN Vice-Chief Dutch Lerat characterized the expansion of commercial irrigation in a province heavily hit by drought and without meaningful consultation of First Nation communities, as “short sighted and irresponsible.”

“We insist on thorough, inclusive impact assessments, independent reviews and meaningful consultation with First Nations in Saskatchewan to be completed before considering whether to proceed with these significant developments.”

Agreement to share engineering information

CTV Regina – A new agreement ensures the sharing of “critical technical and engineering information” between SaskPower and General Electric Hitachi (GEH), the company chosen to manufacture the Small Modular Reactor (SMR) that the province may use in the future.

Going forward, the two companies will be able to collaborate on project planning and share expertise related to the design, fuel sourcing and fabrication for the BWRX-300 SMR. According to SaskPower, the design is based on similar large-scale plants that have been operating across the globe for decades.

The agreement is said to streamline SaskPower’s planning and licensing work to inform its decision whether to

proceed with nuclear power in the province. That decision is set to come in 2029.

SaskPower selected the BWRX-300 as the reactor for its SMR development work in 2022. The BWRX-300 is a boiling water reactor capable of producing 300 megawatts from a single unit. The province is currently studying two potential sites for an SMR near Elbow and Estevan.

Saskatoon’s most cycled intersection



CBC Saskatchewan/CTV Saskatoon – Saskatoon’s city council voted to add features to a busy cycling intersection, appeasing Saskatoon’s cycling community while going against the recommendations of administration.

College Drive and Wiggins Avenue is the most biked intersection and the second-most walked intersection in Saskatoon. It has a history of harmful crashes.

The features were contained in a long-awaited 82-page engineering report by CIMA+, an engineering consulting firm, on that intersection of College Drive and Wiggins Avenue following the death of Natasha Fox, 33, who was hit and killed by a cement truck there while cycling with her children on May 24, 2023.

Her husband, Tod Fox, said Natasha was biking toward the intersection with her two sons close behind. The walk sign was illuminated. She turned to look at her children, pulling her field of vision away from the cement truck, then went into the intersection and was hit. Tod Fox blames his wife’s death on the city’s lax traffic laws and infrastructure and criticizes the company that owns the truck, stating the driver could not see Natasha because it wasn’t equipped with a trucking safety feature.

The report – which looks at the intersection through the eyes of urban planners, engineers and safety professionals – was presented to council in early April and contained 14 recommendations including changes to traffic signals, cycling and pedestrian infrastructure and new signage. Most of those are either in progress, a part of the Bus Rapid Transit project, or completed.

The City of Saskatoon's transportation committee passed most of the recommendations in early April. They would cost the city about \$49,250.

Administration supported all but three of the recommendations.

They were:

1. Develop bike box pavement markings, a northbound painted bike lane on Wiggins Avenue between College Drive and Elliott Street and implement no-right-turn-on-red restrictions.
2. Modify lanes to create a one-way northbound street on Wiggins Avenue, double left-turn lanes southbound out of the University of Saskatchewan and a fully protected cycling facility on Wiggins Avenue for one block.
3. Expedite the "Connecting Campus" study, which is assessing the cycling route to the University of Saskatchewan through the Varsity View, Haultain and Adelaide-Churchill neighbourhoods. It is also looking at necessary cycling infrastructure.

This frustrated the cycling community, who said the audit was done because someone was killed riding a bike at that intersection. Councillors tried to find a way to implement something immediately rather than have the intersection go unchanged for years.

Jay Magus, P.Eng., Saskatoon's director of transportation, explained to council that adding a painted bike lane and bike box would decrease safety on Wiggins Avenue. Painting a bike box could provide a false sense of safety, as the markings can still be driven over and could become covered in snow during the winter.

"Quite frankly, just putting a black box and a painted line will not improve safety, it will lower the level of safety," said Magus.

Administration also said eliminating red light right turns would be inconsistent with the rest of the city.

Magus suggested bike infrastructure along the neighbouring road, Monroe Avenue North, could be a better option since it can connect Stonebridge all the way



north through the University of Saskatchewan campus.

"We know what type of infrastructure needs to be put in where and we're confident in what would work and what won't," Magus said to councillors.

Cyclists say Wiggins Avenue provides the most direct access to campus and other parts of the city. Council considered a cycling corridor for the intersection of Wiggins Avenue and College Drive in 2014 but voted to defer it in favour of a pilot project in downtown Saskatoon. The corridor never came to fruition.

Rare earth processing

CBC Saskatchewan/CJME – The federal government announced a \$6-million grant for the Saskatchewan Research Council's rare earth processing facility.

The funding for this project comes more than a year after the federal government invested in a private rare earth mining company. Vital Metals shut down its Saskatoon facility due to rising costs and declared bankruptcy in September 2023. The federal and provincial governments said then that building a rare earth mineral processing facility remained a priority, because Saskatchewan is rich in potash, uranium, lithium and helium deposits.

This grant will help SRC "establish and commercialize a process" to separate unrecovered rare earth oxides from radioactive monazite tailings.

"This is an important investment, not just for Saskatchewan and not just for Saskatoon, but for the entire country," said Dan Vandal, minister responsible for PrairiesCan, who recently toured the facility along with Industry Minister François-Philippe Champagne, Energy and Natural Resources Minister Jonathan Wilkinson and Trade Minister Mary Ng.

The facility aims to establish Saskatchewan as a hub for the rare earth element supply chain and form an industry model for future commercial expansion in the province. Mike Crabtree, president and CEO of the Saskatchewan Research Council, says that when the new facility goes into operation, it will be able to compete with the Chinese market, which is a global leader in the rare earths industry. At the same time, it will be the most environmentally sustainable plant in the world.

"These types of plants produce vast or utilize vast quantities of water and chemicals. This will not emit one single drop," said Crabtree. "Everything will be recycled and reused."

Jeremy Harrison, provincial minister responsible for the Saskatchewan Research Council, said the funding from the federal government, along with the initial \$71-million investment from the Saskatchewan government, will help the research council break new ground in the rare earth space.

The new funding is on top of \$2.5 million provided by PrairiesCan in 2022 and a recent \$5-million investment from Natural Resources Canada.

Vital Metals was to be the first company in Canada to begin processing rare earth minerals. In September 2022, PrairiesCan had announced a \$5-million interest-free, repayable loan to Vital Metals under the Jobs and Growth Fund to help with equipment installation and other costs.

“We are investigating how we can recoup those dollars. That work is ongoing,” Vandal said.

A few months into 2023, the Australian-based company announced a pause in construction due to rising costs. By September 2023, Vital Metals was heading for bankruptcy, with MNP eventually taking over insolvency matters.

“We’d been conducting a strategic review of our Saskatoon processing facility and that commenced in April and concluded in mid-July,” said Vital Metal’s non-executive chairman Richard Crookes.

“In summary, we’ve demonstrated, really, that the Saskatoon facility doesn’t make economic sense to operate. So, we’ve decided to terminate that facility.”

Crookes said Vital Metals is moving its operation out of Saskatchewan and will focus on developing its existing rare earth mineral deposit in the Northwest Territories.

All assets, including brand-new mining and processing equipment, went on the auction block on Dec. 24, 2023 and sold to a host of international buyers, according to McDougall Auctioneers’ Dan Degagne.

“It’s been quite a busy three and a half, four weeks dealing with guys from all over the world,” said Degagne as the online auction that sold the equipment – most of it brand new – for pennies on the dollar closed.

“Touring people through the facility from Bulgaria, from Tangiers... (they’re) mostly from mining companies, uranium companies and then, of course, a lot of rare earth mining companies. They’re interested in all the big equipment, for sure.”

A statement from Vandal’s office in January 2024 confirmed the federal government was aware that Vital Metals was no longer economically viable.

A statement from Trade and Export Minister Jeremy Harrison’s office said the Vital Metals’ project looked “at a very specific intermediate product,” and that would not prevent provincial investment into its own Saskatchewan Research Council rare earth processing facility where construction remains on time and on budget.

“SRC and Saskatchewan have a goal to establish a rare earth element hub here in Saskatchewan, forming an industry model for future commercial REE initiatives and

supply chain development. As part of this, we want to see the industry here succeed,” said the SRC.

Geophysical survey of Swift Current area

Leader-Post/Swift Current Online – The area around Swift Current in southwest Saskatchewan will undergo an up-to-date aerial geophysical survey after the Government of Saskatchewan invested \$500,000 into the effort.

This effort, which is being done in partnership with Natural Resources Canada (NRC), furthers the provincial strategy on critical mineral exploration. This area was chosen because there is a lack of recent geophysical survey data available.

Ryan Morelli, P.Geo., is chief geologist for the Saskatchewan Geological Survey with the Ministry of Energy and Resources. It is his hope that this will encourage further exploration for these in-demand resources in that area.

“It’s very dependent on the circumstances,” cautioned Morelli. “There’s potential that it could add information or lead to more discoveries.”

The data collected by the survey will be similar to work conducted in northern Saskatchewan to inform potential future development interests. The area will be mapped into a grid with an airplane flying over it to gather geological data using a magnetometre. This survey will not pinpoint any secret wells of oil or deposits of gold. The readings would reflect different magnetic levels present in portions of the grid, indicating resources such as oil, helium and even lithium-in-brine.

Provincial budget supports geoscience

SaskToday – The provincial budget includes roughly \$10 million in funding over 10 years for the Public Geoscience Initiative. This investment will increase exploration to support the province’s Critical Minerals Strategy.

The existing Oil and Gas Processing Investment Incentive has been extended to 2029 and an additional \$130 million will now support this program, as well as the newly created Critical Mineral Processing Investment Incentive.

The existing Saskatchewan Petroleum Innovation Incentive has also been extended to 2029 and an additional \$70 million will support this program, along with a newly created program called the Saskatchewan Critical Minerals Innovation Incentive.

The government says Saskatchewan is also introducing a new multilateral well-drilling program to grow incremental oil production in the province. These programs support the Growth Plan goal of increasing oil production by 25 per cent to 600,000 barrels per day.

The Saskatchewan Mining Association (SMA) said it is pleased to see the budget contains initiatives that will strengthen Saskatchewan's Critical Minerals Strategy and secure Saskatchewan's place as a globally competitive mining jurisdiction.

Moose Jaw landfill

Discover Moose Jaw/Moose Jaw Today – The City of Moose Jaw has proposed a Solid Waste Management facility to replace the current landfill that will reach its end of life in the next four to five years.

"The site itself, the plan is for a very modern waste-management facility," said solid waste engineer Mark Parker, P.Eng. with GHD Engineering at an open house held by the City of Moose Jaw on Feb. 22 that had about 100 people attend.

"We're not talking about a dump. We're talking about a highly engineered facility where we have liner systems, leachate is managed, stormwater is managed appropriately and there's also opportunities for waste diversion and recycling on-site as well."

The facility would be located on a 390-acre site about 2.5 kilometres north of the city in the RM of Moose Jaw.

"We used a bunch of technical criteria and also criteria from the city in order to pick a site that would be suitable for a modern landfill," said Parker.

Many have voiced their opposition since the proposed site was announced. Parker heard some of those concerns at the open house.

"The ones that are coming to me mostly are concerns about water and how water is managed and that's really landfill engineering and that's what we live and breathe, to make sure we're managing water properly to not contaminate surrounding land," he said.

GHD Limited and Associated Engineering partnered with the city to create a discretionary use application provided to the RM of Moose Jaw. Representatives from the Ministry of Environment, GHD Limited and Associated Engineering answered city council's questions during an early April meeting.

The city cannot expand its current landfill site because of its operation permit's criteria.

"Challenges that the site would be faced with if they wanted to expand at that current site is that, again, the setback distances, water bodies, residents and the airport are all within setbacks for a new landfill. We wouldn't typically approve a landfill being in this location today," said Tara Pidborochynski, P.Eng., with the Ministry of Environment.

According to the Ministry of Environment, the Municipal Refuse Management Regulations date back to 1986 and are not very comprehensive. That is why Saskatchewan looks at best management practices in neighbouring provinces like Manitoba, Alberta and British Columbia.

The solid-waste management facility will include environmental compliance features such as leachate, stormwater and landfill gas management, scale and scale house, public drop-off area for household waste and recycling, landfill, concrete and asphalt management, wood-waste management and composting as per regulations.

Parker was asked if any new landfills opened in recent years in Saskatchewan or adjacent provinces and how those have been handled. Parker said there have been a few.

"Each one should be considered as its own thing. The concerns of residents, the location and geology, all of it is separate," he said.

"While we do lean on experiences from the past, it is not a one-size-fits-all when it comes to solid-waste management (venues)."

Parker explained that opening a new landfill is "a long and difficult process," which is why regulators and consultants attempt to construct new venues with 100-year lifespans.

Moose Jaw's City Hall must submit two reports to the RM as part of the approval process for the proposed landfill – a traffic impact assessment report and a site suitability report. The traffic impact assessment report will help the RM council to better understand the future impacts of development on the surrounding road network and it will inform specific upgrades that they believe will be needed to address traffic safety.

Once completed, the team was to submit an updated discretionary use application with the traffic study included. It then wants to meet with the RM to discuss the document, answer questions and go through the final revisions.

The team will also submit a copy to the Ministry of Highways for approval since the report will highlight the intersection upgrades that may be required on Highway 2, she continued. Furthermore, the ministry will work with the RM to ensure that all recommendations in the report are followed.

There have been concerns about land devaluation. Parker said the engineering firms can't answer the question about land values because that it is outside their area of expertise.

News Beyond Our Borders



Collapsed Baltimore Francis Scott Key Bridge and Dali Container Ship

Maryland bridge collapse

CBC – The collapse of the Francis Scott Key Bridge, a major bridge in Baltimore, after a container ship rammed into one of its support beams has engineers asking questions about the structure and its construction.

This is the first major collapse due to a ship impact in decades, U.K. engineering specialist David Knight said.

“It’s extremely unusual to have a bridge collapse caused by a ship impact,” Knight said.

“We do get instances of ship impact on piers, but normally, piers are designed to accommodate ... a certain level of impact from ships and from shipping that’s expected in that area.”

The Dali, a Singapore-flagged vessel, reported losing power before colliding with a pier supporting the bridge. The bridge was supported at two points, according to Benjamin Schafer, a professor of civil and systems engineering at Johns Hopkins University in Baltimore. When one of those supports is compromised, it’s inevitable the bridge will collapse.

What investigators will need to understand is why the ship couldn’t avoid the pier when there were no other vessels around, said Marina Bock, a lecturer in structural engineering at Aston University in the U.K.

“Maybe if the vessel had hit a small section of the suspended deck, the bridge would have been able to survive the collision, but not a main pier,” she said.

Maryland Gov. Wes Moore said in a news conference that the bridge was up to code.

From 1960 to 2015, there have been 35 major bridge collapses worldwide due to ship or barge collisions, with a total of 342 people killed, according to a 2018 report from the World Association for Waterborne Transport Infrastructure.

Eighteen of those collapses happened in the United States. One of them, in 1993, caused 47 deaths when a barge tow became lost in dense fog and struck a low-level railroad bridge near Mobile, Ala.

“There are numerous vessel collision accidents with bridges which cause damage that varies from minor to significant but does not necessarily result in collapse of the structure or loss of life,” the report states.

New information on geological hydrogen

Financial Times – As much as five trillion tonnes of hydrogen exists in underground reservoirs worldwide, according to an unpublished study by the US Geological Survey.

Geologists say this could mean the start of a new energy “gold rush” for this carbon-free resource — hydrogen generated naturally within the Earth.

Project leader Geoffrey Ellis previewed the results at the American Association for the Advancement of Science annual meeting in Denver.

“Most hydrogen is likely inaccessible, but a few per cent recovery would still supply all projected demand — 500mn tonnes a year — for hundreds of years.”

Previous scientific opinion held that little pure hydrogen was likely to exist near the Earth’s surface because it would be consumed by subterranean microbes or destroyed in geochemical processes. But geologists now believe hydrogen is



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generated in large quantities when certain iron-rich minerals react with water, Alexis Templeton of the University of Colorado, Boulder, told the AAAS conference.

Hydrogen requires different geological conditions from oil and natural gasfields. “We haven’t looked for hydrogen resources in the right places with the right tools,” said Ellis.

Geologists are now finding natural hydrogen reserves around the world. This month researchers reported that more than 200 tonnes of hydrogen a year were flowing from the Bulqizë chromite mine in Albania.

The demand for hydrogen as a fuel and industrial raw material, particularly to make ammonia for fertilizer production, has been mainly met so far by chemically reforming gas that is made up largely of methane, known as “blue hydrogen” when the carbon emissions are captured or “grey hydrogen” when they are not.

A smaller amount is made by splitting water through electrolysis using renewable energy sources, known as “green hydrogen.”

Mengli Zhang of the Colorado School of Mines said tapping natural hydrogen — also known as geologic or gold hydrogen — would be cleaner and cheaper than blue or green hydrogen.

“A gold rush for gold hydrogen is coming,” she told the conference.

The prospect is beginning to attract interest from investors who see geological hydrogen offering an opportunity to produce clean hydrogen in a way that is not only low-carbon, but also low-land footprint, low-water footprint and low energy consumption.

Manitoba intersection

A restricted crossing U-turn or RCUT, which is new to Saskatchewan, may also be used in Manitoba as part of a planned redesign of the highway intersection where 17 people were killed in a bus-semi crash last year.

This type of intersection is rarely seen in Canada, but they exist throughout the United States, particularly in Minnesota.

The RCUT offers drivers an indirect route — turn right onto the main highway, weave toward a dedicated lane for a U-turn at the median, then head in the appropriate direction — to prevent them from crossing a busy four-lane divided highway.

Transportation experts acknowledge it sounds confusing, but they say it works. Drivers would only need to pay attention to one direction of traffic at a time.

“It’s simplifying a driver’s decision,” said Dan Brugman, state traffic safety engineer for the Wisconsin Department of Transportation.

Right now “when you’re coming up to that stop sign on a four-lane divided roadway, you have so much noise that you got to pay attention to, got to pay attention to four different lanes of traffic to try to shoot across in one movement,” he added.

“With RCUTs, we’re simplifying that driver task by having you focus on that near-side flow of traffic.”

An RCUT is one of three options being explored to overhaul a highway intersection near Carberry, Man., where a crash killed 17 people and injured eight others in June 2023.

The bus driver attempted to cut through four lanes of traffic when it collided with a semi-trailer truck at the junction of Highway 5 and the Trans-Canada Highway. RCMP say the truck had the right-of-way when the bus pulled into the intersection.

The other two options are a roundabout or a wider median, according to a commissioned report the province released recently.

U.S. transportation officials say RCUT intersections, sometimes referred to as J-turns, have successfully reduced the number of severe and fatal collisions. In Wisconsin, those types of collisions have fallen by 70 to 80 per cent in those intersections, Brugman said. In Minnesota, it’s been around a 70 per cent reduction, said Derek Leuer, state traffic safety engineer for Minnesota’s Department of Transportation.

What’s even better is an elimination of right-angle crashes, Leuer said, in which the front of one vehicle strikes the side of another. It’s the type of collision most common when a driver tries to cross four-lane highways, he said.

He said Minnesota’s been “gung-ho” about RCUT intersections since it’s had the data to prove the number of severe crashes has plunged. The state now has 90-plus RCUT intersections, but Leuer admits it was tough to sell the public on the first one, built around 2010.

Leuer said the department immediately went to work to educate the public on the merits of the new intersection setup.

While RCUT intersections successfully reduce crash severity, the total number of collisions actually stays around the same, Leuer said. The increase is seen in minor



collisions, such as a driver being struck from behind at a stop sign.

“We’re going to trade these high-severity, these fatal-injury crashes for property damage crashes, and I always tell people I’ll take that trade all day long.”

The report commissioned by the Manitoba government said an RCUT intersection near Carberry would require careful consideration because of the high volume of trucks on both highways.

That same document also expressed caution around a roundabout, which is also statistically successful, if not better, at reducing severe collisions than an RCUT.

It stated a roundabout in a high-speed rural environment as isolated as the intersection in question “can raise concern regarding driver expectation” — meaning careful consideration of other speed-management measures would be needed for this option.

Leuer prefers roundabouts in lower-speed environments and areas where the traffic volumes from all four directions are similar. Based on those categories, the Carberry intersection may not apply.

The Manitoba report suggests a grade-separated interchange (such as an overpass) could be introduced at that junction in the decades to come, but current traffic volumes don’t support it.

Carberry Mayor Ray Muirhead and other residents of that community would like an overpass, but, “I’m happy that they came back with some potential solutions for that intersection and the three options give us something to think about.”

Geoscientists debate Anthropocene



CNN – A proposal to declare a new geological epoch called the Anthropocene to reflect how profoundly human activity has altered the planet has been rejected.

The proposal was rejected by members

of the Subcommittee on Quaternary Stratigraphy, which is part of the International Union of Geological Sciences, which represents more than 1 million geoscientists around the world.

They voted after a 15-year process to select a geological site that best captures humanity’s impact on the planet.

The geological site chosen was Crawford Lake in Ontario. The international union’s Anthropocene Working Group chose it because of the way sediment from the lake bed reveals the geochemical traces of nuclear bomb tests, specifically plutonium, from 1950.

Geologists break down our planet’s history into eons, eras, periods, epochs and ages — with an eon being the largest chunk of time and an age the shortest. The geologic time scale provides the official framework for our understanding of Earth’s 4.5-billion-year history.

While few scientists doubt the impact humans have made on the planet, the geological community was divided about whether the changes rose to the level of epoch, suggesting it was too soon – in geological terms – for such a declaration. Some argue the start of the Anthropocene could be better defined in other ways, such as the beginning of the Industrial Revolution. Others suggest the impact of humans on Earth was better classified as a geological event that unfolds gradually over a long period of time.

The outcome of the vote was “very disappointing,” said Colin Waters, the chair of the AWG who led the development of the proposal to make the Anthropocene an official part of Earth’s geological history.

“We have as a group many eminent researchers in their field of expertise who wish to carry on as a group, in an informal capacity, that will continue to argue the case that the evidence for the Anthropocene as an epoch should be formalized, as consistent with the scientific data presented in the submission,” said Waters, an honorary professor at the School of Geography, Geology and the Environment at the University of Leicester.

“If the above vote is confirmed ... then the current proposal cannot progress, but given the existing evidence, which continues to grow, I would not be surprised if there is a future call for a proposal to be reconsidered,” he said.

Regardless of whether the term is officially classified as a geological epoch, Anthropocene is already widely in use, said Kim Cohen, an assistant professor of geosciences at Utrecht University in the Netherlands and a voting member of the subcommission.

“Everybody talks about it already. In journals, many people use it. But in geology, not so many as all the other sciences,” he said. Cohen said there were several arguments both for and against the proposal raised during the six-week period of discussion by the subcommission, but declined to give further detail.

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Insurance**



**Health & Dental
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² ctvnews.ca, "How much money does it take to raise a child in Canada?" July 2022.

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* For complete details, see manulife.ca/newmember.

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