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2025
ISSUE 3

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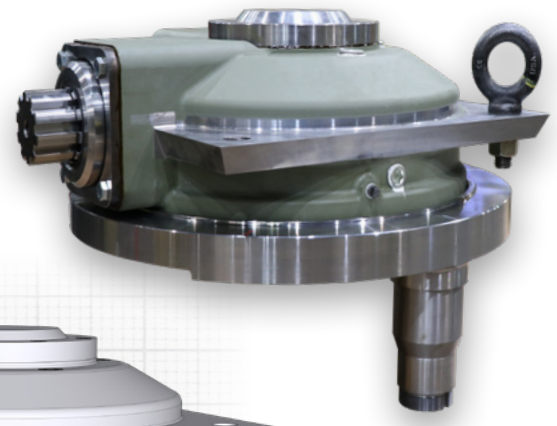

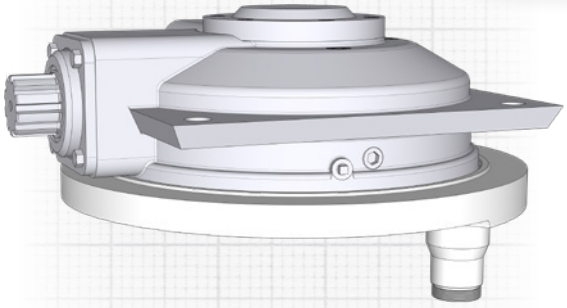

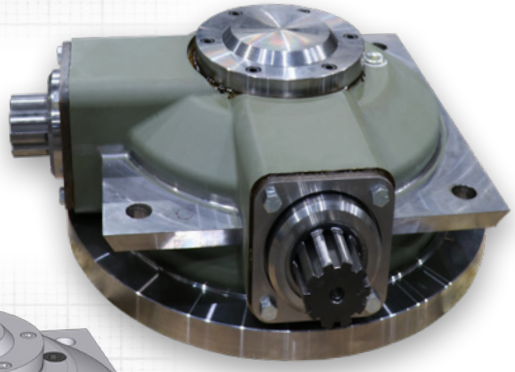

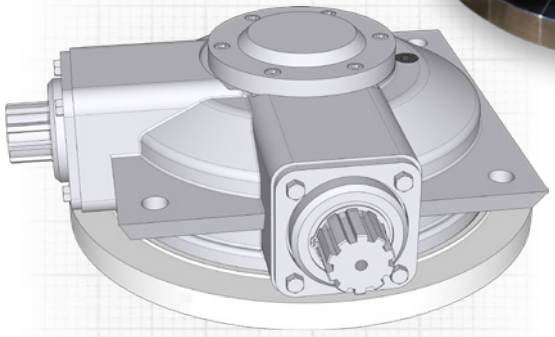

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MESSAGE FROM THE EDITOR

SHAYNA WIWIERSKI

Welcome to the third issue of *The Potash Producer* for 2025, where we celebrate progress, innovation, and connection within the potash and fertilizer sector. As we wind down another eventful year, the impacts of global markets, bold shipping routes, and sustainability breakthroughs make it clear just how dynamic and forward-thinking this industry has become.

This issue launches at a time of remarkable growth. According to the International Fertilizer Association's (IFA) Market Intelligence data, global primary potash production soared to a record 80.9 million tonnes in 2024—a 10 per cent year-over-year increase, and the highest annual volume ever recorded. Potassium chloride (KCl) production similarly spiked to 76.6 million tonnes, a testament to both surging demand and the resilience of our supply chains. Much of this rebound is thanks to greater affordability and the development of new trade routes, especially in response to global sanctions affecting traditional suppliers. Historical challenges have given way to creative solutions, industry partnerships, and a willingness to chart new territory.

Amid this productivity, however, comes increased scrutiny of environmental impacts. A rising production curve means higher greenhouse gas (GHG) emissions, unless industry-wide innovation intervenes. Canadian potash production alone emitted an estimated three million tonnes of CO_2-equivalent in 2015, and these pressures are only intensifying alongside market expansion.

Our feature from Arctic Gateway Group on page 18 provides a fascinating window into how Canadian ports are adapting to serve a broader range of mining products. The Port of Churchill on Hudson Bay—once perceived as a far northern outpost—is proving to be a vital link for connecting Western Canadian resources, including potash, to international buyers. Arctic Gateway's recent partnerships, such as its collaboration with the Potash and Agri Development Corporation of Manitoba (PADCOM), underscore a renewed commitment to diversifying and modernizing Canadian export infrastructure.

Sustainability remains top of mind for industry leaders and readers alike. Prairie Clean Enterprises (PCE) in Saskatchewan is gearing up for a bold new chapter—a project that could transform greenhouse gas reduction in potash mining. With support from the Mining Innovation Commercialization Accelerator (MICA) Network, PCE is pioneering the conversion of agricultural residue, like flax straw, into low-carbon bioheat pellets for industrial energy. Their efforts not only reduce waste and emissions but also highlight how agriculture and mining can form a more circular and responsible partnership.

As 2025 draws to a close, we're also preparing our signature annual print publication—*PotashWorks*—which will be going into layout at the end of the year for release in early 2026. If you have stories, case studies, research, or industry milestones to share for inclusion in our most anticipated issue, please connect with me as soon as possible. Your contributions are what make our magazine the definitive voice of this sector.

For more information, story guidelines, and to browse past issues, visit potashworks.com. Let's keep the conversation going, share our successes, and shape the future of potash—together.

I hope you enjoy this issue!

Shayna Wiwierski

shayna@delcommunications.com

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MESSAGE FROM THE MINISTER OF ENERGY AND RESOURCES

The Honourable Colleen Young

Saskatchewan has a well-deserved reputation as a world-leading mining hub for potash, an important critical mineral that's in high demand around the globe.

Accounting for approximately one-third of global production, Saskatchewan is the world's largest potash producer. This critical mineral is an essential ingredient in fertilizer and is key to increasing crop yields and helping to provide food security to countries around the world.

For decades, potash has played an incredibly important role in Saskatchewan. In 2024, the potash industry directly employed 6,600 people and over 11,000 contractors, procured $2.2 billion of goods and services from Saskatchewan businesses, and generated over $1 billion in royalties and taxes to fund health care, education, and other services vital to our province's quality of life.

In 2024, Saskatchewan potash producers achieved a new annual production record of 24.7 million tonnes of potassium chloride, an increase of eight per cent from 2023, while the value of potash sales reached $7.8 billion. With strong long-term agricultural fundamentals driving an increasing global demand for potash, the outlook for the industry in Saskatchewan is positive for the years ahead.

World-class local companies and global mining giants are showing their confidence in Saskatchewan's thriving potash industry with significant investment. Since 2005, Saskatchewan potash producers have committed over $40 billion to growing the provincial sector. This has included capacity expansions at every existing operation, as well as the construction of the new Bethune and Jansen mines.

Our government is committed to maintaining a stable and competitive development framework to ensure Saskatchewan remains one of the top jurisdictions in the world to develop mining projects. Since the release of Securing the Future: Saskatchewan's Critical Minerals Strategy in March 2023, we have introduced and enhanced several incentive programs and closely monitor our competitive business environment to encourage investment. We continue to be recognized for this dedication as Saskatchewan was once again named the Best Canadian Jurisdiction for Mining Investment in the Fraser Institute's Annual Survey of International Mining Companies.

Providing Saskatchewan potash to the world has come a long way since the province's first mine opened more than 65 years ago, and our government will continue working with our producers to ensure the sector keeps growing in the decades ahead. The Saskatchewan Growth Plan has a goal of increasing annual potash sales to $9 billion by 2030. We are on track to achieve this goal again in the coming years after exceeding this target in 2022 and 2023 due to elevated market prices. We have also committed to growing the production of potash, as well as uranium and helium. We saw record potash production in 2024 and are on pace to match or exceed that amount once again in 2025.

We wouldn't be able to pursue these ambitious targets without the mining companies operating in our province that have made Saskatchewan the world's leading potash producing jurisdiction. Through their investment and innovation, our province continues to lead the way in sustainably supplying potash to the world.

The potash industry remains vital to the prosperous way of life we enjoy in Saskatchewan, creating economic growth, opportunity and secure, sustainable careers. In the years ahead, potash will be a cornerstone of Saskatchewan's bright future.

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BRICS: ALL HANDS ON DECK FOR POTASH PRODUCERS

By Josh Mayfield

Brazil intends to expand its national fertilizer strategy by boosting domestic production capacity to 73 million tons by 2036.

BRAZIL

Recent developments for Brazil's National Fertilizer Plan were announced at the 12th Brazilian Fertilizer Congress held in Sao Paulo. Brazil intends to expand its national fertilizer strategy by boosting domestic production capacity to 73 million tons by 2036. At present, Brazil's domestic fertilizer production is below 50 million tons per year. The Ministry of Agriculture and Livestock (MAPA) and delegates of the Brazilian Association for Fertilizer Diffusion (ANDA) were keen on providing support to the new goals for Brazil's domestic fertilizer production.

Brazil's fertilizer import dilemma is a classic example of how potash resources fit into the geopolitical risk for a country's domestic agriculture production and national food security, especially one which has a GDP-driven agriculture export economy like Brazil. There were other issues addressed at the Sao Paulo event, such as the Bioinputs Law and credit issues for Brazilian farmers. There were also discussions about Brazil's biofuels production, which will further increase the need for fertilizers from foreign import sources in the near term. Corn production hasn't generally been carried out for biofuels in the Brazil market, so this is a growth market scenario for potash producers to compete in this dynamic market.

RUSSIA

At the BRICS Business Forum in Brazil, the Russian Association of Fertilizer Producers (RAFP) claimed that Russia produced over 63 million tonnes of mineral fertilizers in 2024, of which over 50 per cent went to BRICS countries. One of the reasons Russia's fertilizer exports are booming is because Brazil fertilizer demand grew at a rapid pace in 2024 to 2025. Brazil has already increased fertilizer imports from 10.18 million mt in the first half of 2024 to 11.54 million mt in the first half of 2025.

Other major fertilizer producers are taking note of Brazil's fertilizer demand. Both Russia's Eurochem and U.S.-based Mosaic Company have announced new investments into fertilizer production capacity in Brazil. Eurochem invested over USD $1 billion in a new phosphate fertilizer plant. It will produce over one million tonnes of phosphate fertilizer at

the Serra do Salitre phosphate facility. The Mosaic Company will begin operations at a blending, storage, and distribution plant in Palmeirante, Tocantins, Brazil. The processing plant has a capacity of one million tonnes per annum, including warehouse capacity, automated blending, and bagging systems that are connected to a rail system linking ports in Northern Brazil.

INDIA AND CHINA

The PRC's foreign minister Wang Yi met his counterparts in New Delhi on August 19, 2025 to ensure that fertilizers from China would be resumed after nearly one year of export restrictions to India. India has tried to turn this into a political issue between the two countries, but China has in fact restricted fertilizer exports to the global markets since the global COVID-19 pandemic to ensure its own domestic agriculture needs.

China's fertilizer exports have risen significantly since July 2024, mainly because of ammonium sulfate exports. From January to July 2025, China's fertilizer imports were down from a year ago, but the import value of USD $2.4 billion is still a large market for fertilizer producers. Potash producers have a keen eye on China's potash demand. Laos potash mining is uncertain, at best, and Thailand's potash projects are still years away from production. There aren't any other viable potash developers in the Asia-Pacific region at present. India is also a key buyer of potash fertilizers, so any upcoming potash tenders for India will also be insightful for deals with other countries in the global potash market going into the 2025-2026 calendar year.

So, what does this mean for potash producers?

The Russia-Ukraine war has had a detrimental effect on food and fertilizer imports in Sub-Saharan Africa. Three countries to watch for fertilizer development projects are Nigeria, Ethiopia, and Kenya. In a global trading arena where U.S. tariffs rule the roost, agricultural producers are going to rethink fertilizer supplies in the medium- to long-term, which includes all three of the macronutrients— nitrogen, phosphate, and potash. Potash remains to be one of the more reliable sources, as China is not a key supplier, nor have the Middle East tensions caused any potash supply disruptions from Israel or Jordan.

ALL HANDS ON DECK FOR BRICS!

Joshua Mayfield is a growth minerals and sector analyst with Hallgarten + Company Ltd., specializing in fertilizers, mining projects, and emerging market trends in the resource sector.

MINESIGHT MINE: THE RIGHT INFORMATION, TO THE RIGHT PERSON, AT THE RIGHT TIME

Inside Nutrien's real-time mine data tool that's giving underground teams an edge

By Megan Adams, Senior Advisor, Communications – Potash & Commercial, Nutrien

MineSight Mine is a mining software solution that improves how Nutrien plans, operates, and evaluates their underground work.

Since inception in 2019, MineSight Mine has been shaped by Nutrien's cross-functional collaboration and commitment to continuous improvement.

MineSight Mine represents a digital transformation in how Nutrien's potash operations capture and use data underground. Designed and built entirely in-house by teams across operations, maintenance, engineering, ETC and IT, MineSight Mine is a mining software solution that improves how we plan, operate, and evaluate our underground work. By integrating real-time data directly from the mining face, the platform supports informed decision-making, improves accuracy, and promotes consistency across sites.

Built around feedback from end users and refined through hands-on field testing, MineSight Mine supports several critical functions:

1. ***Operational Optimization*** – By integrating real-time data directly from the mining face, the platform supports informed decision-making, improves accuracy, and promotes consistency within the potash network.
2. ***Integrated Insights*** – Centralized data analysis tools combine inputs across departments, giving leaders a clearer view of priorities and performance.
3. ***Safety and Compliance*** – Features like safety checks, tracking, and offline support help maintain high operational standards and regulatory requirements.

Since inception in 2019, MineSight Mine has been shaped by Nutrien's cross-functional collaboration and commitment to continuous improvement.

"Navigating the introduction of new technologies is inherently challenging, so engaging the workforce early and consistently fosters smoother integration," says Anna Weegar, senior manager, connected worker, at

Since inception in 2019, MineSight Mine has been shaped by Nutrien's cross-functional collaboration and commitment to continuous improvement.

Nutrien. "Implementing a customized rollout provided the opportunity for the 2,400 users to familiarize and build confidence with the technology gradually. Additionally, comprehensive hands-on training enhanced both competency and consistency in data entry, while in-field support fortified confidence and dedication, ensuring long-term success."

The platform was rolled out across Nutrien's potash sites from 2022 through 2023. By bringing operations onto a common system, teams gained clearer insight into site-level and network-wide performance, particularly in how time and resources are spent.

"MineSight Mine has completely changed how we operate underground," says Scott Ramler, continuous improvement lead, Vanscoy Potash, at Nutrien. "The near real-time visibility at the face gives us the ability to make smarter decisions, faster—and seeing comments directly from operators adds invaluable context that's helping shift our culture. Just as important is how we got here: the collaboration across our network and the strength of our internal talent made this project a success. Everyone involved—from operations to IT—came together to build something that works, and the relationships built through rollout were key."

That on-the-ground impact has been echoed across the network, where teams are seeing meaningful performance gains.

"Bringing multiple mine sites onto a single platform has been a major step forward," says Kirby Ashcroft, mine operations coordinator, Rocanville Potash, at Nutrien. "The results are tangible: faster performance, better delay coding, and features like photo uploads that improve clarity and accountability. MineSight Mine continues to evolve, and upcoming additions like survey sampling and document databases will make it even more powerful."

Senior leadership sees long-term value in how the platform connects insights to action.

"MineSight Mine positions us for future success by enabling the efficient collection of more accurate potash operations data than ever before," says Trevor Berg, senior vice-president, potash operations at Nutrien. "As we expand our data set, we can analyze and understand where time is being spent, which helps us choose the most valuable continuous improvement initiatives. This ensures our focus is directed towards the most impactful areas."

From enhanced production data to simplified shift reporting, MineSight Mine supports the way we work today—and prepares us for what's next.

"This technology enables multi-device access, fulfills regulatory mine shift reporting, and sets the stage for future development and integration," adds Weegar. "It highlights the strength of our teams and our ability to build solutions that truly reflect our operations."

Potash production site in Jordan operated by the Arab Potash Company.

A GLOBAL ROADMAP FOR DECARBONIZING POTASH PRODUCTION AND STRENGTHENING THE FERTILIZER INDUSTRY

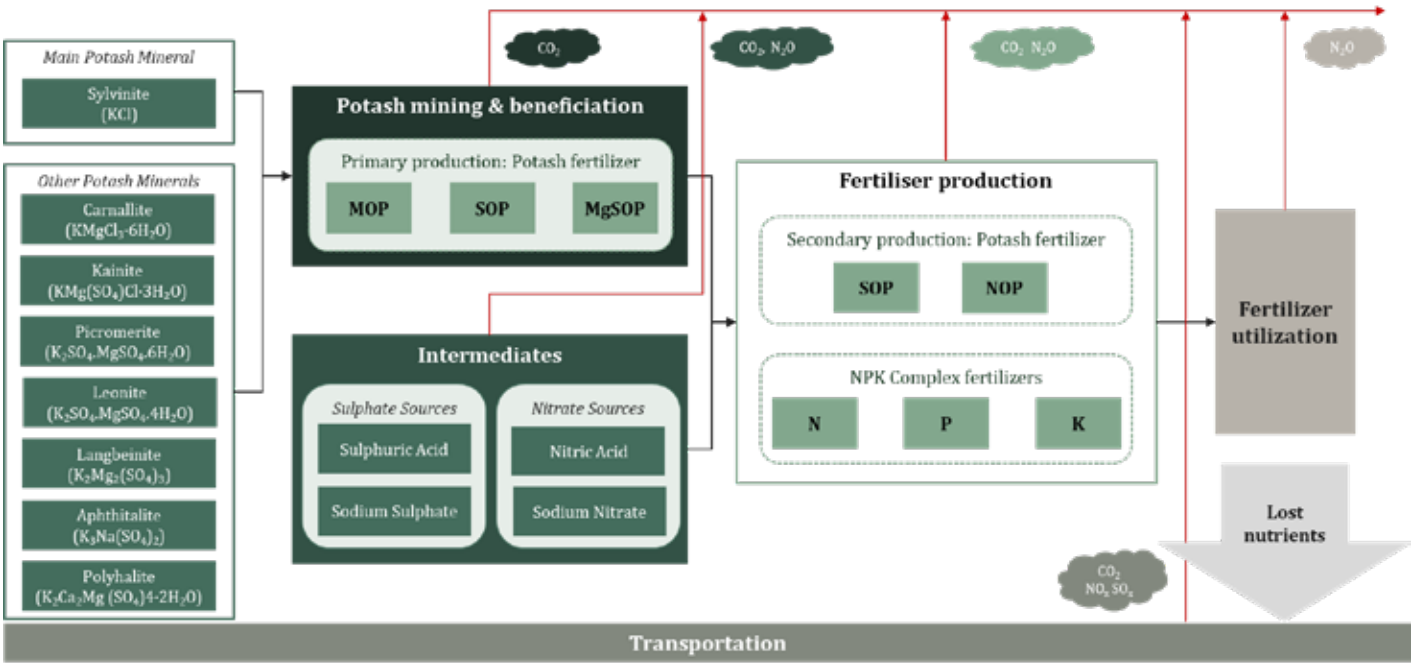
By Stephen Bell, International Fertilizer Association

According to the International Fertilizer Association's (IFA) Market Intelligence data, global primary potash production reached a record high of 80.9 Mt in 2024, marking a 10 per cent year-over-year (YoY) increase. This growth was driven by improved affordability and, consequently, a sustained recovery in demand. Potassium chloride (KCl) production accordingly rose by 10 per cent to 76.6 Mt in 2024 YoY, the highest annual volume on record. The increase was fueled by a rebound in demand, along with the development of alternative trade routes from Russia and Belarus in response to sanctions.

With growing production, a corresponding increase in greenhouse gas (GHG) emissions can be expected for the global potash industry under business-as-usual scenarios. Potash production in Canada in 2015 was estimated to emit around three Mt CO_2-eq of direct and indirect emissions based on Canada's production profile. Production profiles for other countries are not as well described, and so we have limited visibility on the global situation aside from using rough emissions intensity metrics. A back of the napkin calculation suggests that if the global potash industry were a country, it could place within the top 100 in terms of annual emissions (using an outdated global emission factor for KCl of 0.23 t of CO_2-eq per tonne produced). However, recent and statistically robust GHG emissions data for the global potash industry are severely lacking, leaving estimates like these unreliable.

Without a science-based understanding of both the emissions and mitigation opportunities in the global potash

Figure 1. Initial scope for potash production that is expected to be covered by the roadmap project, including NPK products and associated use-phase emissions. Red arrows indicate sources of greenhouse gas emissions. Note that stakeholder engagement is currently underway and this early depiction will likely be subject to various changes as the project progresses and industry experts provide more detailed insights in the coming months.



industry, producers are unable to plan, compare, implement, and be recognized for credible and effective decarbonization strategies. Moreover, companies require guidance on what mitigation results can be expected of them within an industry-wide decarbonization pathway, considering regional and facility-specific differences (which was identified in Fertilizer Canada's Technology Roadmap as a determining factor for the feasibility and implementation of decarbonization solutions). The lack of such a resource hinders public-private collaborations to invest in low-carbon potash production, just as production is increasing and the fertilizer industry is expected to respond to global food demands while also acting on emissions. Unlike for low-carbon ammonia production, which is informed by several science-based resources, including the International Energy Agency's widely recognized Ammonia Technology Roadmap from 2021, the decarbonization of phosphate and potash fertilizers has received less attention.

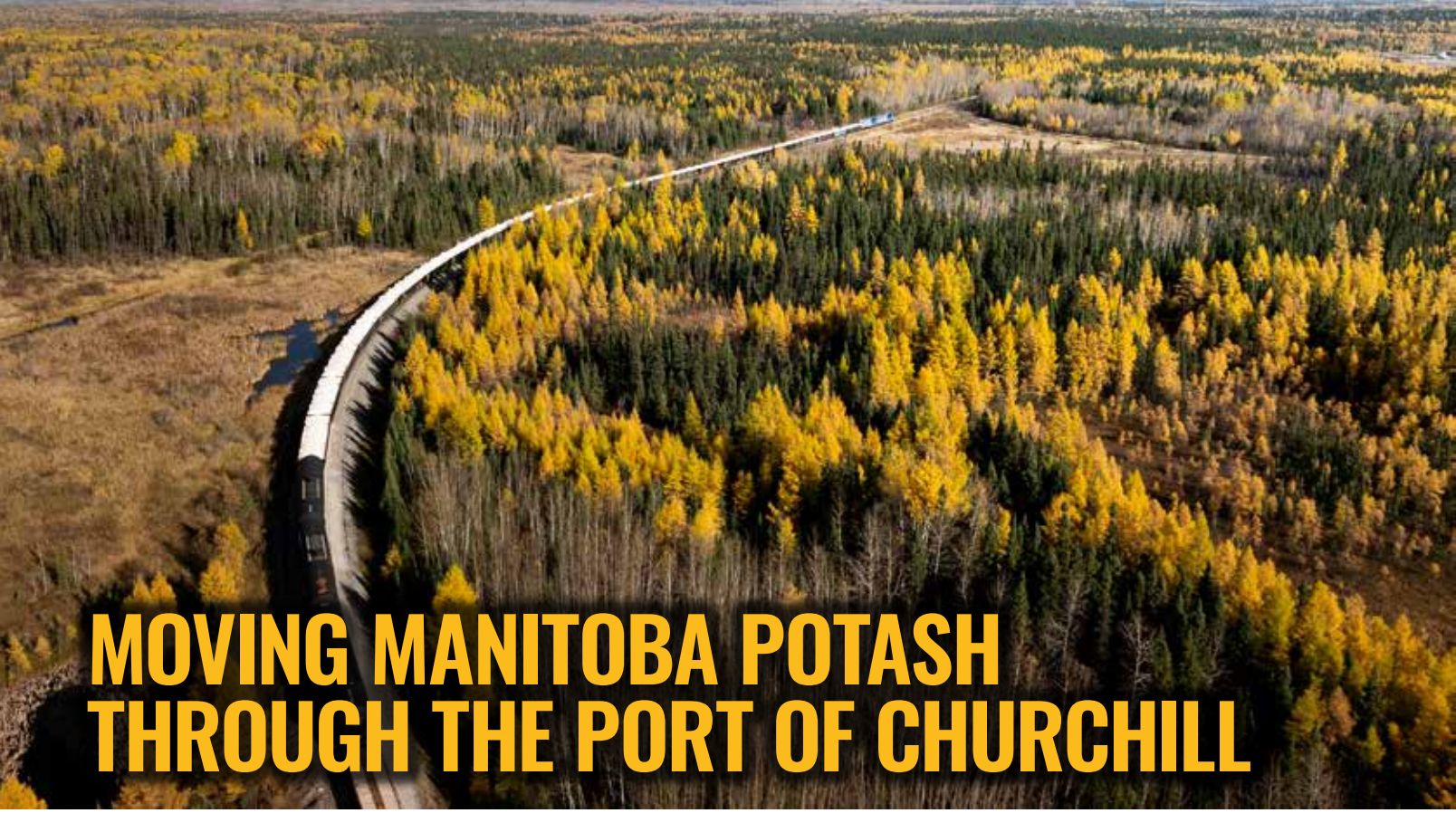
Expert members of IFA's Decarbonization Working Group have identified this challenge as a strategic priority. As part of IFA's innovative Fertilizer Industry Decarbonization Initiative, IFA is partnering with the European Bank for Reconstruction and Development (EBRD) and ERM to deliver a dedicated technology roadmap for decarbonizing both phosphate and potash production in 2026. The roadmap, to be developed by ERM with support from Systemiq, aims to identify the policy and technology deployment actions required to mitigate the industry's emissions.

The potential scope for potash production covered by the project

is shown in Figure 1. The project is exploring archetypes for global production of potash fertilizers and developing a global GHG emissions baseline. This is to be followed by evaluating low-carbon technologies, along with policy, technology development, and deployment actions. The project aims are to roadmap a sustainable and low-carbon potash fertilizer industry, foster stakeholder buy-in through structured engagement, and develop indicators and metrics for assessing the industry's performance in implementing the roadmap. Ultimately, the roadmap will serve as a resource to help the potash industry continue to supply fertilizers to a growing global population while at the same time addressing its contribution to global emissions.

With the first stakeholder workshops starting in November 2025 and the final project publication tentatively planned for June 2026, all potash producers and other key stakeholders from within and outside the industry are welcome to get involved. Stakeholders can participate in hybrid and in-person workshops, review and provide feedback to project deliverables, and share their organizations' perspectives to promote wider uptake of the roadmap and its positive benefits for the global fertilizer industry.

An in-person workshop dedicated to potash production is planned for early March 2026 in Toronto, Canada. The workshop goals are to discuss and validate the actions for decarbonization and circularity measures, the implementation of proposals, the KPIs and monitoring frameworks, and to ensure that the roadmap is aligned with climate disclosure and target-setting frameworks. Reach out to IFA (Stephen Bell, sbell@fertilizer.org) and the team at ERM (Daniel Saxton, daniel.saxton@erm.com) to learn more.



MOVING MANITOBA POTASH THROUGH THE PORT OF CHURCHILL

By Chris Avery, President & CEO, Arctic Gateway Group

Arctic Gateway, owned by 41 Indigenous and northern communities, operates the Hudson Bay Railway and the Port of Churchill.

At Arctic Gateway Group, we have always believed that the Port of Churchill has untapped potential to connect Western Canada's resources to the world. Potash is part of that future.

Today, we are working to ship more kinds of products through Churchill. Over the past two years, we have proven we can move critical minerals to global markets, with zinc concentrate shipments exported to Europe from the Port of Churchill. Now, through our new partnership with the Potash and Agri Development Corporation of Manitoba (PADCOM), we are expanding and diversifying again, this time with potash mined in Manitoba. We are also in active talks with potash producers in Saskatchewan.

This partnership is about opportunity and teamwork. Manitoba companies are working together to move Manitoba resources to world markets. Arctic Gateway, owned by 41 Indigenous and northern communities, operates the Hudson Bay Railway and the Port of Churchill. Churchill is Canada's only deepwater Arctic port linked by rail to the national network. PADCOM is developing a potash mine near Russell, Manitoba. Together, we are building a made-in-Manitoba solution that gets products overseas faster, makes Manitoba more competitive, and supports jobs in northern and Indigenous communities.

PADCOM's president, Daymon Guillas, said it best: "This is a story about Manitoba potash by Manitoba people through a Manitoba port. It is a good Manitoba story." PADCOM expects to send its first test train to Churchill in 2026, a major milestone that will open new markets in Europe, Africa, and South America. Shipping north through Churchill also cuts travel time from three weeks to six days.

At Arctic Gateway, we have been preparing for this moment for years. The Hudson Bay Railway is being rebuilt and modernized. Freight volumes have doubled, travel times are three hours shorter, and new tools such as drones, LiDAR, radar, and artificial intelligence help us keep the line strong and reliable in ways that weren't possible in the past. At the Port of Churchill, we are adding a new bulk storage facility that will triple capacity for potash and other minerals.

This partnership is about unlocking the full potential of Manitoba's maritime coast and Canada's Arctic Trade Corridor, showing what happens when local innovation and strong northern infrastructure come together.

Manitoba is a maritime province, and Churchill is its northern port. With PADCOM, we are charting a new course that connects Manitoba's resources to the world and brings the benefits home to the communities that helped build it.

Together, we are building a made-in-Manitoba solution that gets products overseas faster, makes Manitoba more competitive, and supports jobs in northern and Indigenous communities.

FOOD SECURITY IS NATIONAL SECURITY

Potash gets ready for its closeup

By Farhad Abasov

Potash is finally getting a seat at the big table with other critical minerals. Once ignored, it's now shaping debates not just in agriculture, but in trade policy and even national security strategy. Strip it down to the basics: no potash, no bread, no rice, no corn. Recognizing it as critical is overdue — and it's also a starting gun. From here on out, the conversation isn't just about farming. It's about food security as a pillar of national security.

A QUIET MINERAL STEPS INTO THE SPOTLIGHT

In August 2025, the U.S. Geological Survey finally said the quiet part out loud: potash is recommended to be added to the list of critical minerals (USGS, 2025). Farmers didn't need a memo. They've always known potassium chloride is the engine behind food security. Policymakers, though, spent years swooning over lithium, cobalt, and rare earths. Potash was treated like wallpaper. That's over. What used to be a farm input is now sitting squarely in the national security conversation.

FROM CROP INPUT TO CRITICAL ASSET

Potash isn't just another line item in fertilizer blends. Along with nitrogen and phosphate, it makes up the "big three". It strengthens plant cells, helps crops survive dry spells, increases yields of staples such as corn, soybeans, rice, and wheat, and keeps harvests big enough to feed entire nations.

Here's the catch: America imports more than 90 per cent of its potash, mostly from Canada, and until recently from nations such as Russia and Belarus. In calm years, fine. But calm years are rare. The last three have shown how fragile supply chains really are — sanctions, Russian outages, EU tariffs on potash imports. Farmers don't need to read the headlines. They feel it every planting season.

A MARKET THAT'S TIGHTENING FAST

The USGS sees consumption climbing from 61 million tonnes of KC_l in 2024 to 65 million in 2025 (USGS, 2025). The International Fertilizer Association is more bullish still, and some projections stretch demand to 118 million tonnes by 2050 (IFA, 2025 & Visual Capitalist (2021)).

Brazil imports nearly 90 per cent of its potash, putting it among the world's biggest buyers (Reuters, 2024). In China, inventories have dropped by more than half a million tonnes, pushing prices higher (Profercy, 2025). And India, which relies entirely on imports, is racing to secure supply beyond Russia (Quartz, 2022).

None of this looks like short-term noise. It's a flashing sign: potash is now a geopolitical lever, not just a farm input.

WHY FOOD SECURITY EQUALS NATIONAL SECURITY

Food and security aren't two separate issues. They're fused together. Take fertilizer out, and you get smaller

harvests, higher grocery bills, and political fires no government wants to face. Remember the Arab Spring in 2011? Bread prices went through the roof. Grain and fertilizer shocks were in the mix.

The 1970s told the same story. Fertilizer prices tripled (World Bank, 1974). U.S. food prices spiked nearly 20 per cent in a single year (NBER, 1975). People boycotted supermarkets. In poorer countries, shortages hit like a hammer.

The Pentagon has been warning about climate-driven food shocks for years (U.S. DOD, 2021). Think of potash the way we once thought of oil: a resource that can destabilize whole regions if supply dries up. Russia and Belarus control nearly 40 per cent of exports (USDA ERS, 2023). That concentration is a problem the world can't ignore.

SHIFTING GEOPOLITICAL MAPS

Governments are moving. The European Parliament voted in 2025 to crank up tariffs on Russian and Belarusian potash, aiming as high as €430 per tonne of KC_l by 2028 (European Parliament, 2025). In Washington, the U.S. International Development Finance Corporation — normally focused on lithium and rare earths — is even funding feasibility studies for African potash. Food security is moving to the top of the agenda (DFC, 2025).

Gabon, in Central Africa, is a prime example. Already a manganese heavyweight, it's drawing serious investment interest to its fertilizer sector. With Atlantic ports feeding Brazil, Africa, and the eastern seaboard of the United States, potash developers in this country may soon play a pivotal role in securing and diversifying potash supply for these regions.

THE ECONOMICS OF RESILIENCE

In June 2025, Belarus sold potash to India at $349 per tonne KCl — $66 more than the year before (CZapp, 2025).

Brazil's spot hovered near $360 to $365 by mid-year (YCharts, 2025).

Those numbers don't sit quietly on spreadsheets. They roll into higher farm costs, which turn into higher grocery bills.

The International Food Policy Research Institute (IFPRI) has said it plainly: volatile fertilizer prices drive food insecurity. The IFPRI emphasizes that fertilizer price spikes and concern about their affordability/availability cast a "shadow on future harvests" and risk keeping food prices high, which in turn threatens food security (IFPRI, 2022).

When farmers can't afford inputs, harvests shrink. Nations stretch their reserves to cover costly imports. Donor's juggle mounting food aid demands with budgets already under strain.

REDEFINING WHAT'S CRITICAL

Potash showing up on the draft U.S. critical minerals list is more than a technicality. It unlocks money, policy support, and investor confidence. Rare earths made the same jump from industrial footnote to geopolitical chess piece. I believe potash is next.

Defining potash as a critical mineral could lead to innovation in the areas of precision agriculture, nutrient recycling, smaller-footprint mining — tools that trim environmental damage while keeping supply steady. Fertilizer systems should be treated like ports or highways: critical infrastructure.

THE ROAD AHEAD

By 2050, global food demand could be up 56 per cent (Nature Food, 2021). That means fertilizer security isn't optional. It's survival.

Potash now stands shoulder to shoulder with lithium, copper, and rare earths. Ignore it and the costs ripple from farms to dinner tables to foreign policy. Strip it down: no potash, no bread, no rice, no corn. Recognizing it as critical was overdue. The bigger challenge is treating food security for what it truly is — national security.

Farhad Abasov is the chairman of Millennial Potash, the company advancing the Banio Potash Project in Gabon in Central Africa. Abasov is a veteran mining executive who has built and sold multiple resource companies including potash and lithium companies.

BRAZIL POTASH PRESELLS 91 PER CENT OF FUTURE PRODUCTION, CATALYZING CONSTRUCTION FINANCING PHASE

Brazil Potash Corp. (NYSE American: GRO), a mineral exploration and development company with a critical mineral potash agriculture project, the Autazes Project, announced on October 28, 2025 the execution of its third and final definitive commercial offtake agreement between Potássio do Brasil Ltda., a wholly-owned subsidiary of the company, and Kimia Solutions Ltda., part of Bulkfertz, a Brazilian fertilizer trading and distribution company established in 1978 by Nelson Moreno.

The binding agreement establishes a 10-year take-or-pay commitment for Kimia to purchase up to 704,000 tons of potash annually from the Autazes Potash Project at market prices.

"This agreement with Kimia represents exceptional commercial momentum, with all three major take-or-pay offtake agreements completed as planned, securing pre-sales of over two million tons of annual production for up to 17 years," said Matt Simpson CEO of Brazil Potash. "Achieving approximately 91 per cent contracted capacity positions us to further advance project financing discussions, knowing we have industry-leading Brazilian partners committed to directly purchase or distribute our potash."

Elie Cohen, CEO of Kimi Solutions, adds that this commitment with Brazil Potash represents a transformative opportunity for Brazilian agriculture and aligns perfectly with their mission to strengthen their partnership with the domestic fertilizer supply chains.

"As part of the Bulkfertz Group, we have the distribution infrastructure and market relationships to ensure this domestically produced potash reaches farmers efficiently and cost-effectively throughout our current and loyal customer base all over Brazil," said Cohen.

Nelson Moreno, partner of Kimia Solutions and founder of Bulkfertz Group, said that this agreement not only enhances their product portfolio, but also supports Brazil's strategic objective of reducing import dependency while providing their agricultural supply chain with a reliable, competitive source of this critical nutrient.

KEY TERMS OF THE AGREEMENT

- Volume commitment: Kimia agreed to purchase between 23 per cent to 32 per cent of Brazil Potash's annual potash production, up to a maximum of 704,000 tons per year, on a take-or-pay basis.
- Contract duration: The agreement has a 10-year term, aligning project financing requirements and ensuring long-term revenue visibility and stability.
- Production ramp-up: Kimia's offtake obligations will commence upon the start of production and scale proportionally during the ramp-up period to full production capacity.
- Strategic flexibility: The Agreement permits Brazil Potash to assign future payment rights to financial institutions for project financing purposes.

COMMERCIAL STRATEGY PROGRESS

The Kimia Agreement provides strong revenue visibility essential for project financing and demonstrates robust market demand for domestically produced Brazilian potash. The remaining production will be reserved for spot sales to capture potential market premiums, accommodate maintenance outages and production variability.

This commercial milestone follows the company's recently signed MOU with Fictor Energia for approximately $200 million in power line construction funding and a $20 million equity investment. Together, these strategic partnerships significantly de-risk both the commercial and infrastructure components of the Autazes Project.

ABOUT KIMIA SOLUTIONS

Kimia Solutions was born from Bulkfertz's journey that started in 1978 with a focus on the future. In 2024, Bulkfertz sold over two million tons of fertilizer to over 150 clients spread across Brazil. The company has a highly qualified team, representing major international manufacturers of raw materials for the fertilizer industry and serves the main players in the Brazilian market.

ABOUT BRAZIL POTASH

Brazil Potash (NYSE American: GRO) (www.brazilpotash.com) is developing the Autazes Project to supply sustainable fertilizers to one of the world's largest agricultural exporters. Brazil is critical for global food security as the country has amongst the highest amounts of fresh water, arable land, and an ideal climate for year-round crop growth, but it is vulnerable as it imported over 95 per cent of its potash fertilizer in 2021, despite having what is anticipated to be one of the world's largest undeveloped potash basins in its own backyard. The potash produced will be transported primarily using low-cost river barges on an inland river system in partnership with Amaggi (www.amaggi.com.br), one of Brazil's largest farmers and logistical operators of agricultural products. With an initial planned annual potash production of up to 2.4 million tons per year, Brazil Potash's management believes it could potentially supply approximately 20 per cent of the current potash demand in Brazil. Management anticipates 100 per cent of Brazil Potash's production will be sold domestically to reduce Brazil's reliance on potash imports while concurrently mitigating approximately 1.4 million tons per year of GHG emissions.

TURNING RESIDUE INTO POWER

PCE flax pellets.

Prairie Clean Enterprises' bioheat solution set to support deep decarbonization of potash production

Prairie Clean Enterprises (PCE), based in Saskatchewan, is on the brink of a major breakthrough that could reshape how the potash industry approaches greenhouse gas (GHG) emissions. Thanks to a $1.1 million grant from the Mining Innovation Commercialization Accelerator (MICA) Network, PCE is advancing a revolutionary project that converts agricultural residue into clean, renewable energy for industrial operations.

The concept is both simple and powerful. Each year, up to half a million tonnes of flax straw are left over from farming operations across the North American Prairies. Historically, much of this residue has gone unused or been burned, releasing carbon into the atmosphere. PCE's process captures that untapped potential by transforming the straw into high-quality, low-carbon bioheat pellets that can directly replace fossil fuels used in potash mining and processing.

"Our technology allows potash producers to use a renewable, Saskatchewan-made fuel that could reduce GHG emissions by as much as 80 per cent," said Mark Cooper, PCE's CEO and president. "It's local, it's sustainable, and it keeps economic value right here in Canada."

A MADE-IN-CANADA SOLUTION

The heart of this innovation lies in PCE's new facility in Weyburn, Saskatchewan, where state-of-the-art equipment is being commissioned and tested. The facility will begin full-scale production later this year, with staff training

PCE facility. Photo courtesy of PCE/Avrie Greenman-Barber.

Flax straw being piled up on the Canadian prairies.

already underway. Once operational, it will be one of the first commercial facilities in Canada to produce biofuel from flax straw and the only flax straw processing.

A key part of the project's success is the partnership between Prairie Clean Enterprises and Saskatchewan Polytechnic (Sask Polytech). Through this collaboration, Sask Polytech researchers and students are contributing technical expertise and data analysis to optimize the combustion properties and energy efficiency of PCE's bioheat pellets. This academic partnership ensures that innovation is grounded in strong scientific research while also building the next generation of skilled professionals in Saskatchewan's clean energy and resource sectors.

This development aligns directly with the MICA Network's mandate to support technologies that drive cleaner, more efficient mining operations. The partnership recognizes the enormous potential for bioheat to deeply decarbonize industries like potash, which have traditionally relied on natural gas or coal to generate the heat necessary for production.

"Potash is one of Saskatchewan's most important exports, and the world needs it to grow food," said Cooper. "By pairing our bioheat technology with potash production, we can ensure this vital industry remains both competitive and a leader in low-carbon energy solutions."

ENVIRONMENTAL AND ECONOMIC BENEFITS

The environmental benefits are clear, but the local economic impacts are equally important. PCE's operations create new market opportunities for farmers by providing value to what was once considered residue. The company works directly with producers and local businesses to aggregate and transport the straw to PCE's Weyburn facility, ensuring that the benefits of innovation are shared across the community.

At full production, the Weyburn facility can supply low-carbon biofuel pellets to industrial customers, providing a reliable and renewable alternative that supports both sustainability and energy security.

LOOKING AHEAD

As the world accelerates its shift toward lower-carbon energy sources, Prairie Clean Enterprises is positioning Saskatchewan and Canada as a leader in biofuel technology. With support from MICA, Sask Polytech, and a clear focus on innovation, the company's work represents a tangible step toward a cleaner and more decarbonized mining sector.

"This project is about proving that sustainability and industrial growth can go hand in hand," said Cooper. "It's about turning residue into opportunity and ensuring Saskatchewan remains at the forefront of deep decarbonization."

For more information, visit prairiecleanenterprises.com.

SASKATCHEWAN'S STRATEGIC EDGE IN GLOBAL POTASH

By Tabetha Stirrett, RESPEC's Vice-President of Mining & Energy

Global potash demands now exceed 70 million tonnes annually, yet production remains concentrated in just a few jurisdictions. Canada, Russia, and Belarus dominate supply, and disruptions in Eastern Europe have shifted attention toward Canada as the most reliable long-term source.

With sanctions curbing Belarusian exports and geopolitical instability complicating Russian output, Saskatchewan has emerged as the anchor of global supply chains. This reliability matters for import reliant regions in Asia and Latin America because long supply routes mean transportation costs, which can make or break competitiveness.

From geology to workforce readiness, the province's strengths demonstrate why Saskatchewan remains the backbone of global potash production.

A GEOLOGICAL FOUNDATION FOR GROWTH

Saskatchewan's position rests on geology. The Prairie Evaporite Formation hosts laterally continuous, flat-lying seams grading 18 to 25 per cent K_2O and low insolubles. These conditions are ideal for both conventional underground and solution mining. Thickness and uniformity reduce operating risk, while favourable mineralogy enables cost-efficient extraction at scale.

Decades of operational data confirm that ore-grade consistency and seam continuity have allowed producers to maintain cost stability, even amid shifting global demand.

By contrast, the peripheral extensions into Manitoba, Canada, and North Dakota, United States, lose continuity, thin out, and introduce carnallite and other non-potash minerals that complicate processing. North Dakota's deposits lie at depths of approximately 2,700 metres, where high creep rates present additional challenges despite favourable solution-mining temperatures.

Elsewhere in Canada, New Brunswick mines once contributed to national output but were ultimately undermined by water-prone deposits, geologic complexity, and higher operating costs. Closures in these mines highlight the comparative advantage of Saskatchewan's thicker, purer reserves.

COMPARATIVE BASIN INSIGHTS

Across North America, basin characteristics vary significantly. Mining of Michigan's Borgen Bed, with impressive grades reaching 35 per cent K_2O, was paused in 2013 as Mosaic shifted focus to assets with more favourable economics. Today, Michigan Potash & Salt Company is actively advancing the project, supported by its United States strategic

mineral designation. Utah and Arizona also host known deposits, although development is shaped by water availability, regulatory considerations, and mineral complexity.

Globally, similar factors influence progress. Spain's seams present lower grades and require careful management of insolubles and structural features. Brazil's emerging projects are navigating early-stage development, focusing on infrastructure and mineral composition. In Southeast Asia, shallow deposits in Thailand and Laos are being evaluated with a focus on managing water inflow during shaft construction.

The Danakil Basin in Ethiopia and Eritrea offers potential, but development planning must account for geology and regional stability. Morocco's shallow deposits provide logistical advantages, while ongoing efforts address ore grade and regulatory processes.

Together, these examples show how Saskatchewan's basin stands out for its favourable geology, infrastructure readiness, and operational stability, making it a resilient asset in a dynamic market.

MINING METHODS: PROVEN AND EVOLVING

Saskatchewan producers rely primarily on two proven methods: conventional underground mining and solution mining. Conventional mines involve shafts sunk 800 to 1,100 metres, with specialized cutting equipment extracting the ore. While reliable, these projects carry multibillion-dollar capital costs and exposure to water-inflow risk.

Solution mining, pioneered commercially at Belle Plaine, has become a strong alternative for deeper deposits. By injecting water to dissolve potash in place and pumping brine to the surface, operators bypass the need for large shafts. Industry experience over the past two decades shows that solution mining can deliver steady output with lower labour intensity, smaller surface footprints, and limited tailings.

The sector continues to advance selective solution mining, which is an approach adapted from oil and gas thermal extraction. By selectively targeting potassium dissolution with sodium-chloride-rich brine, this method reduces salt tailings, environmental disturbance, and capital intensity. For mid-tier and emerging players, this approach offers them a path to economic viability in a market dominated by majors.

Workforce renewal is another priority. With a significant portion of the skilled labour pool nearing retirement age, training and recruitment are central to sustaining productivity.

BALANCING COSTS, COMMUNITIES, AND CONTINUITY

Saskatchewan's advantages are clear, but investors still weigh risk. Market exposure is influenced by shipping costs from a landlocked jurisdiction. Environmental and social considerations remain in focus as sustainability pressures grow. These factors prompt greater attention to water stewardship, tailings management, and community relationships.

Workforce renewal is another priority. With a significant portion of the skilled labour pool nearing retirement age, training and recruitment are central to sustaining productivity. Operational continuity depends as much on knowledge transfer and workforce adaptability as on ore quality.

THE NEXT ERA OF SASKATCHEWAN POTASH

In a market defined by geopolitical uncertainty and growing food demand, Saskatchewan's potash sector remains resilient and indispensable. The province combines high-grade reserves, a proven operating record, and regulatory stability. These advantages make Saskatchewan the world's most reliable and scalable potash investment environment.

Sustaining this position will depend on continued innovation in extraction technologies and the next generation of technical professionals to carry it forward. If geology built Saskatchewan's potash industry, technology and talent will shape its future.

COLLABORATIVE APPLIED RESEARCH NETWORK DRIVES MINING INNOVATION ACROSS THE PRAIRIES

Funded by $899,500 from PrairiesCan, the initial round of P2INACLE projects are delivered in partnership with IMII and involve at least two participating polytechnics. Photos courtesy of Saskatchewan Polytechnic.

Three new P2INACLE projects launch this fall with IMII

Saskatchewan Polytechnic is leading an applied research network that brings together six top polytechnics across the prairies to drive innovation and economic growth in Canada. In partnership with the International Minerals Innovation Institute (IMII), the network has launched three applied research projects to support the region's mining sector.

The Prairie Polytechnic Innovation Network Accelerating Commercialization for Local Ecosystems, known as P2INACLE, includes Saskatchewan Polytechnic, NAIT, Northwestern Polytechnic, Red Deer Polytechnic, RRC Polytech, and SAIT. This collaborative network leverages shared expertise and state-of-the-art facilities to deliver practical, industry-driven solutions that help Canadian companies grow and compete globally.

Funded by $899,500 from PrairiesCan, the initial round of P2INACLE projects are delivered in partnership with IMII and involve at least two participating polytechnics. Over the spring and summer months, IMII and its members, including BHP, presented a series of business challenges to P2INACLE's network of polytechnic researchers. The three successful applied research project proposals focus on mining innovation, sustainable materials, and environmental remediation.

"Canada has what the world wants — and our mining and critical minerals sector is ready to deliver. In a period of

profound change and new challenges, this sector is central to building the strongest economy in the G7, thanks to the innovation that drives new solutions, supports good jobs, and creates lasting opportunities," says the Honourable Eleanor Olszewski, Minister of Emergency Management and Community Resilience and minister responsible for Prairies Economic Development Canada. "Through P2INACLE, our new government is proud to support innovation that not only strengthens this sector, but also creates meaningful opportunities for Prairie communities. By combining the expertise of our polytechnics with the innovation of industry partners, we are helping local businesses turn bold ideas into practical solutions—solutions that support high-quality jobs, enhance vibrant communities, and build a resilient Canadian economy."

Saskatchewan's mining sector is a staple of many rural and northern communities, and is an economic driver for Canada, adds the Honourable Buckley Belanger, Secretary of State (Rural Development).

"When industry and our post-secondaries work together, like this partnership between P2INACLE and IMII, we solve real problems — quicker, safer, cleaner," says Minister Belanger. "Innovation in mining isn't abstract; it helps workers today and keeps our communities thriving for the long haul."

Lesley McGilp, executive director of the IMII, says they are proud to be part of the P2INACLE pilot project.

"This collaborative platform is an exciting step forward in advancing innovation across Western Canada's mining and minerals sector," says McGilp. "The P2INACLE pilot is focused on solving real-world challenges identified by our industry members, and we look forward to seeing the meaningful impacts it will create."

P2INACLE is more than a network, it's a trusted source of applied research and innovation. Dr. Larry Rosia, president and CEO of Saskatchewan Polytechnic, says they are proud of their long-term partnership with IMII and are excited to collaborate with the institute to lead this important joint effort to support mining companies across Western Canada through hands-on research and real-world solutions.

"Thank you to PrairiesCan for funding these innovative projects," says Rosia.

One project is developing sustainable and cost-effective construction materials by combining potash tailings with fly ash and kraft lignin, along with other concrete ingredients. Potash tailings are the leftover materials after potash is removed from the rock during mining. Fly ash is a fine, powdery material that is produced when organic materials are burned, and kraft lignin is extracted during the pulping process to make paper. Researchers are formulating and testing the combination of these materials for concrete production. The goal is to reduce industrial waste, promote circular economy practices, and possibly support affordable housing through innovative material development. Project partners include Sask Polytech, RRC Polytech, and IMII members.

Dr. Abu Kamal, Sustainability-Led Integrated Centres of

Excellence (SLICE) research chair at Sask Polytech, serves as the principal investigator. He is collaborating with Dr. Alireza Kaboorani, Building Efficiency Technology Access Centre (BETAC) director at RRC Polytech.

Another project focuses on using potash tailings as a compost additive, returning nutrients to the ecosystems while reducing environmental impacts. The first phase of this project will include formulating and testing composting blends using potash tailings, fly ash, and other carbon- and nitrogen-rich materials. Safety and quality testing will ensure the environmental suitability of the compost additive. Project partners include Sask Polytech, NAIT, and IMII members. Dr. Abu Kamal, SLICE research chair at Sask Polytech, is the principal investigator in collaboration with Dr. Heather Kaminsky, the NSERC Industrial research chair at NAIT.

A third project investigates various frequencies of electromagnetic spectrum for their possible use to develop an imaging system to view beyond the visible boring face in potash mines. Researchers are conducting an extensive literature review to understand how different frequencies of electromagnetic radiation interact with different soils. The project also includes an assessment of existing imaging technologies and aims to identify the most effective frequency ranges for subsurface visualization. Project partners include Sask Polytech and SAIT, along with IMII members. Dr. Abdul Raouf, SLICE research chair at Sask Polytech, will lead the project along with Wade Hawkins, Centre for Innovation and Research in Unmanned Systems (CIRUS) research chair at SAIT.

"We are excited to see work underway on these P2INACLE projects in partnership with IMII and their members," says Dr. Ian McWilliams, associate vice-president for Applied Research and Innovation at Sask Polytech. "This pilot showcases the power of collaboration in driving innovation forward. It also lays the groundwork for establishing processes and best practices that will support the long-term success of P2INACLE."

Each P2INACLE project is designed to deliver tangible outcomes for IMII and its members.

Learn more at saskpolytech.ca/P2INACLE.

UPLift 2025:
AN UNFORGETTABLE INAUGURAL GATHERING FOR THE FUTURE OF URANIUM, POTASH, AND LITHIUM



Left: Day one opened with a series of fireside conversations with the executives of all the major mining companies. Centre: A standout moment came with the address by Honourable Colleen Young, Saskatchewan's minister of energy and resources of Government of Saskatchewan, who emphasized the province's commitment to sustainable resource development and innovation. Right: The UPLift Fireside Collaboration for the Energy Transition the Role of the Global Instititute for Energy Minerals and Society.

Held from September 8 to 11, 2025, at the Sheraton Cavalier Saskatoon Hotel, the Uranium, Potash, and Lithium International Conference (UPLift 2025) brought together global leaders, innovators, and technical experts to explore the evolving landscape of these three critical minerals. Organized in partnership with the Hydrometallurgy Section of the Metallurgy and Materials Society and the SK/MB Chapter of Canadian Mineral Processors Society, with the support of the Saskatchewan Mining Association, the event built on the success of the Fourth International Conference on Uranium in 2020, expanding its scope to include potash and lithium—three pillars of Saskatchewan's mineral economy.

The conference featured focused sessions that fostered deep technical exchange and meaningful networking. With dedicated tracks for each mineral, attendees engaged in specialized discussions led by invited speakers and industry veterans.

Day one opened with a series of fireside conversations with the executives of all the major mining companies, moderated by leaders from the Saskatchewan Mining Association, Pam Schwann and Brad Sigurdson, and honorary chair Engin Özberk. These sessions explored the past, present, and future of mineral production in the province. Speakers included Brian Reilly (Cameco), Jim Corman (Orano Canada), Sam Farris (K+S Potash), Karina Gistelinck (BHP), Lawrence Berthelet (Mosaic), James Hatley (Uranium Energy Corp.), Gary Haywood (Paladin Canada), Adam Engdahl (NexGen Energy Ltd.), and Cory Belyk (CanAlaska Uranium). Their insights highlighted Saskatchewan's global leadership in uranium and potash, and the growing potential of lithium.

A standout moment came with the address by the Honourable Colleen Young, Saskatchewan's Minister of Energy and Resources of the Government of Saskatchewan, who emphasized the province's commitment to sustainable resource development and innovation.

Day two featured a panel discussion on the Global Institute for Energy, Minerals, and Society (GIEMS)—a partnership between the University of Regina, University of Saskatchewan, and Saskatchewan Polytechnic. The panel was led by Tom Kishchuk, executive director, and included experts Prof. Greg Poelzer, Dr. Graeme Drysdale, and Assist. Prof. Joyce McBeth. This panel discussion explored how GIEMS will foster collaboration across academia, government, and industry to address the opportunities and challenges presented by uranium, potash, and lithium development.

Keynote presentations followed, each offering a deep dive into the technical and economic dimensions of the featured minerals. Biman Bharadwaj (Cameco) spoke on uranium's resurgence in mining, milling, and innovation. Paul Labbe (MICA) spoke on the historical perspective of growing potash production in Saskatchewan. Dr. Norman Chow (Kemetco Research) provided a comprehensive review of lithium's journey: from innovation to global dominance – technical, economic, and Canadian involvement.

Beyond the sessions, UPLift 2025 offered rich opportunities for connection. On Wednesday, attendees gathered at the

Above: On Wednesday, attendees gathered at the Western Development Museum for a lively social event. Below: Beyond the sessions, UPLift 2025 offered rich opportunities for connection.

Western Development Museum for a lively social event sponsored by the Saskatchewan Research Council (SRC), Peter Lucas Project Management, and RESPEC. On Friday, participants enjoyed an exclusive behind-the-scenes tour of two cutting-edge research facilities hosted by the SRC. These experiences deepened attendees' understanding of local innovation and fostered collaboration.

UPLift 2025 succeeded in creating a collaborative space for industry, academia, and government to align on the future of these three critical minerals. With high engagement, expert-led sessions, and strategic conversations, the conference reinforced Saskatchewan's position as a hub for sustainable mineral innovation.

Thank you to our conference organizing committee: honorary chair: Engin Özberk, chair historical metallurgy; co-chairs: Jeff Adams (Hatch), Todd Steen (Hatch) and Greg Miller (Hatch); MetSoc liaison: Dimitrios Filippou (Rio Tinto Iron & Titanium); CMP liaison: Rayneth Law (Molycop); advisors: Thomas Specht (Hatch) and Brad Sigurdson (Saskatchewan Mining Association); sponsorship leads: Skyler Dillman (AESSEAL) and Matthew Kemp (Peter Lucas Inc.); and proceedings chair: Rashid Bashir (York University).

Special thanks to all sponsors, especially HATCH, NexGen Energy Ltd., and Cameco, whose generous support helped make UPLift 2025 a success.

KEEPING POTASH PRODUCTION MOVING

How CMMS supports reliability from shutdown to shutdown

Asphalt plant resurfacing setup.

Gear runouts.

In Canada's potash industry, reliability is everything. The rotary dryers, kilns, and cookers that process raw material into finished product operate under extreme conditions, heat, rotation, heavy loads, and abrasive environments. When one of these systems goes down, production halts, and the effects can ripple through the agricultural supply chain that depends on potash to grow crops worldwide.

Across Saskatchewan, Custom Machine & Mechanical Services (CMMS) has become a trusted partner in maintaining this reliability. Working with potash producers large and small, CMMS provides the mechanical expertise needed to keep key rotating equipment running smoothly from one shutdown to the next.

MECHANICAL PRECISION IN DEMANDING ENVIRONMENTS

Rotating equipment in potash processing is subject to continuous wear, vibration, and misalignment. Over time, these stresses can develop into significant mechanical problems if not identified and corrected early. CMMS works alongside mine maintenance and reliability teams to detect the warning signs, perform critical alignments, and carry out precision machining to restore stability.

Using advanced measuring instrumentation, thrust balancing, and alignment tools, CMMS helps operations maintain consistent performance between maintenance cycles. Their work focuses on the root causes of equipment stress rather than temporary fixes, an approach that has proven effective across many Saskatchewan operations.

CASE STUDY: RESTORING STABILITY AT ALLAN POTASH

A clear example of this approach occurred at a mine site that is near Saskatoon, where a rotary dryer had developed severe vibration issues. The equipment was shaking so violently that it caused the entire building to tremble during operation. The vibrations not only threatened production, but also posed long-term structural and mechanical risks.

CMMS was brought in to investigate and resolve the problem. After a thorough assessment, the team identified significant thrust imbalance within the rotary dryer. Through a combination of repair services, realignment, and precise thrust balancing, CMMS was able to stabilize the equipment.

Following the intervention, the excessive vibration was eliminated, and the kilns returned to normal, steady operation. The result was a safer working environment, reduced wear on mechanical components, and restored production efficiency.

This example underscores how technical expertise and practical field experience can make the difference between ongoing equipment issues and long-term reliability.

SUPPORTING A GLOBAL INDUSTRY

Potash production in Saskatchewan supports a much larger story — one that extends from mine sites to global agriculture. The fertilizer produced here plays a vital role in helping farmers maintain soil health and increase crop yields. Every hour of reliable production contributes to that global food supply chain.

By helping maintain the mechanical health of potash processing equipment, CMMS and similar service providers support not just local operations, but the broader mission of feeding a growing world population.

RELIABILITY THROUGH COLLABORATION

Sustaining equipment reliability in the potash sector is a collaborative effort that depends on experienced mechanical service providers, proactive maintenance programs, and ongoing monitoring. The work done by CMMS at mines and other sites across Saskatchewan highlights how targeted mechanical solutions can keep production moving safely and efficiently from shutdown to shutdown. ●

ENGINEERING CLEANER TRANSFERS

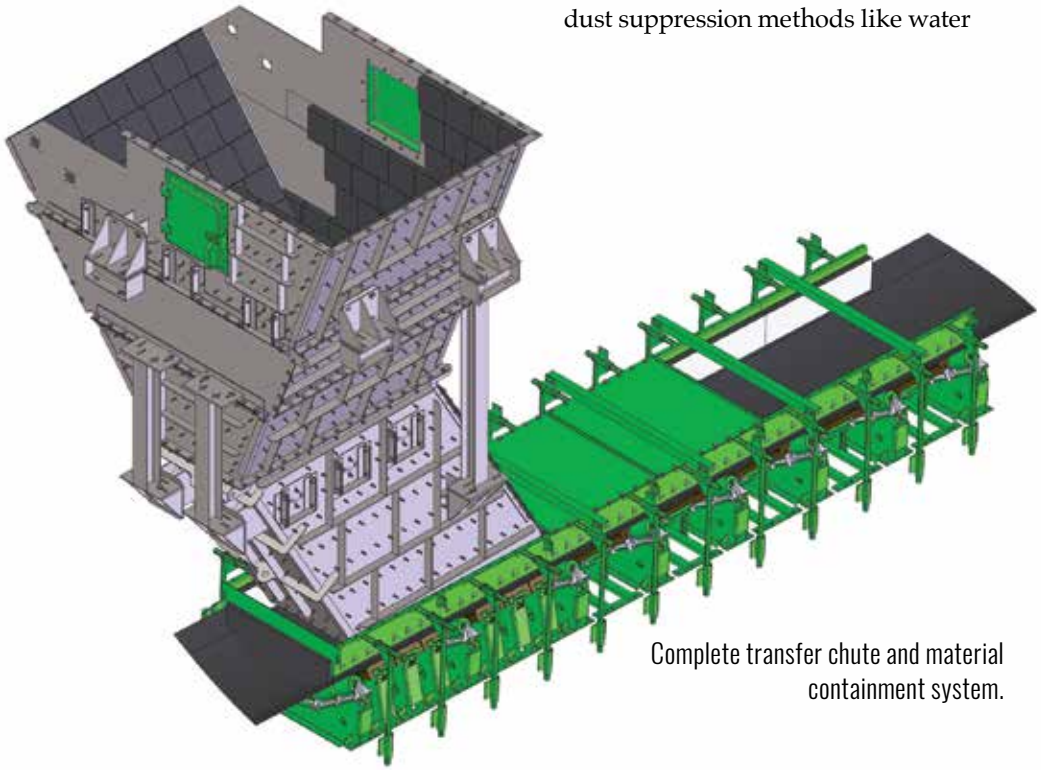
The case for complete conveyor sealing in dust control

By Richwood

Left: Material and dust containment. Below: Material containment with dust control.

In the mining and aggregate industries, dust control is not just a matter of regulatory compliance, it's a critical factor in operational efficiency, equipment longevity, and worker safety. Whether moving potash, coal, or crushed rock, transfer points on conveyors are often the biggest contributors to fugitive dust on site.

As more operations look for sustainable, low-maintenance solutions, the focus is shifting away from active dust suppression methods like water sprays or collection systems toward passive dust control. This approach aims to contain dust at the source through smarter engineering and better system integration. The key? A fully sealed conveyor transfer point that begins with proper transfer chute design and ends with effective belt sealing without relying on chemicals or mechanical filtration.



Complete transfer chute and material containment system.

Passive dust control is based on the principle of managing airflow and material movement within a sealed environment. Instead of capturing airborne dust after it's been generated, this method prevents dust from escaping in the first place. And in sectors like coal and potash, where dust can be combustible, corrosive, or extremely fine, preventing release at the source is not only safer but also more cost-effective in the long term.

Dust generation often starts in the transfer chute. Poorly designed or undersized chutes create turbulence, unpredictable material flow, and

uncontrolled impact forces. These conditions pulverize material, bounce fines into the air, and increase wear throughout the system.

A properly engineered transfer chute must be tailored to the application. By controlling the trajectory and energy of the falling material, properly designed chutes reduce both spillage and airborne particles from the outset.

Too often, discussions about dust control jump straight to sealing components like skirting or curtains. But those solutions can only be effective if the conveyor belt itself is properly supported. If the belt is sagging between idlers or has any vertical movement while being loaded, efforts to seal fines and dust will typically fail.

In fact, trying to seal against a moving unstable belt creates gaps and pressure inconsistencies that actively promote dust escape. Proper belt support is fundamental. This is usually best accomplished using engineered impact beds or cradles. It provides a stable consistent surface that allows sealing components to function as designed. Without it, every other dust control measure is compromised.

THE FIVE PILLARS OF PASSIVE DUST CONTAINMENT

A high-performance passive dust control system integrates several interdependent components. These include:

1. Controlled material flow

The geometry of the transfer chute should guide material smoothly and centrally onto the belt, minimizing bounce and degradation that leads to fine dust creation.

2. Energy dissipation and belt support

Engineered belt support systems—like impact saddles or idlers—absorb the shock of material drop, protect belt integrity, and ensure the belt remains flat and steady, enabling effective sealing.

3. Full transfer enclosure

Effective containment requires more than just basic skirting. It demands a sealed system—including rugged wear liners, properly design skirting, skirtboards, and proper sealing rubber—to prevent escape paths for dust-laden air.

4. Air velocity reduction

Turbulent air is one of the primary causes of dust becoming airborne. Passive systems use baffled stilling zones and dust curtains to slow air movement, allowing fine particles to settle back onto the belt.

5. Pressure equalization

A sealed enclosure must allow for pressure relief to prevent sudden air bursts that force dust out. Passive systems incorporate venting, chimneys, and extended containment zones based on CEMA 575 principles, allowing dust to settle naturally without needing active suppression.

Across North America and globally, mining operations are proving the value of this passive approach. Companies like Richwood have delivered complete transfer point solutions that significantly reduce dust without water, filters, or moving parts.

In one coal facility example, implementing a full Richwood passive dust system reduced visible dust emissions to near-zero while cutting cleanup time and improving conveyor belt life. In potash handling, systems have maintained long-term performance in highly corrosive, fine dust environments. And in aggregates, they've proven successful under heavy impact from high-tonnage loads, reducing spillage and airborne particulate.

In addition to improved worker safety and actual system performance, passive dust control is far less maintenance intensive than active dust control methods like misting systems or baghouses. Its long-term impact on safety, production, and worker morale is significant.

About Richwood

Richwood engineers complete conveyor solutions for the mining and bulk material handling industries, specializing in dust containment, impact protection, and belt support. With almost 50 years of field experience, Richwood products are trusted worldwide for durability and performance. Learn more at www.richwood.com.

THE MINING INVESTMENT EVENT

THE Mining Investment Event – Canada's Only Tier 1 Global Mining Investment Conference© is held annually in Québec City, Canada. It is independently sponsored and designed to facilitate privately arranged meetings between mining companies, international investors, and various mining and government authorities. The conference has become one of the most important platforms in Canadian mining for investors and thought leaders in the sector. THE Event is also committed to promoting diversity, equality, and sustainability in the mining industry through education and innovation through its unique Student Sponsorship and SHE-Co Initiatives.

THE Event launched International Mining Week with the support of the international Trade and Forfaiting Association (ITFA), representing the rights and interests of banks, financial institutions and service providers involved in trade risk and asset origination and distribution, and the Association Minière du Québec (AMQ), who count as members some of the largest international mining issuers. The vision for International Mining Week is to create collaborative partnerships that bring together international mining companies, supply chain expertise, investors, and government entities in one location concurrent with THE Event. THE Event will be announcing other mining community groups and jurisdictions as we grow this initiative. ●

Information on THE Mining Investment Event & International Mining Week, or register to attend: www.themininginvestmentvent.com

A2Z SAFETY & TRAINING – THINK SAFE, WORK SAFE – BE MORE THAN A SLOGAN!

We've all heard "Think Safe, Work Safe" or how about "Don't be a fool, use the proper tool", or maybe "Safety is as simple as ABC – Always Be Careful". What do these catch phrases mean and do they work?

They might work in a way that you can't get it out of your head now; catch phrases are meant to be memorable through simplicity, familiarity, and comfort. Mnemonic phrases serve as mental shortcuts to a brand, value, or concept. So yes, they work and they are meant to help you remember that you are important enough to keep yourself and your coworkers safe without injury or worse. Perhaps you are the employer reading this; ultimately it is up to you to keep all employees and contractors safe. We can help with that!

A2Z Safety and Training staff. From left to right: Ashton, general manager; Kelly, office administrator; Mathew, instructor; Elizabeth, office manager; Trevor, owner; Rebekka, bookkeeper; and Curtis, NSCO.

On our end, it is more than the training; it's who took the phone call, who made the quote, who booked the training, who billed it out, who organized and sent out the tickets, who made the entry into the database for tracking? So much more happens in our office than just teaching courses. Office staff is essential in any business, an important link to having things run smoothly. Procedures need to be followed and updated regularly to ensure clients are happy coming to A2Z Safety & Training Ltd.

With the right knowledge, training, and support, a worker can excel in their job with confidence. This means providing onboarding, orientation, and proper training in safety, emergency protocols, hazard awareness, and injury protocol training. If an organization does not have these procedures in place we can help with that too. Getting a business, organization, or company up to compliance with OH&S can be a daunting task at times. Know that we have the resources to support you and want you to stay safe.

Check us out on Facebook or our website (which at the time of writing is under construction) and give us a like or a follow. We are always looking to add to our team as well, so if you are interested in changing gears and coming to teach, instruct, or lead safety programs, please get in touch! We are always looking to grow and expand. Please email resumes or inquiries to elizabeth@a2zsafetyandtraining.ca.

PDAC ANNOUNCES 2026 AWARDS RECIPIENTS

The Prospectors & Developers Association of Canada (PDAC) is pleased to announce the recipients of the 2026 PDAC Awards, celebrating the people and partnerships driving discovery, development, and sustainable growth in the mineral industry.

"The 2026 recipients demonstrate how passion and teamwork can turn ideas into achievement," said Karen Rees, PDAC president. "Their work reflects the determination, resourcefulness, and shared commitment that keep our industry moving forward."

Since 1977, the PDAC Awards have recognized the dedication and ingenuity that drive advancement in communities across Canada and around the world.

The 2026 recipients will be honoured during the PDAC 2026 Convention at the Awards Celebration & Nite Cap on March 3, 2026, at the Fairmont Royal York Hotel in Toronto. One of the convention's most anticipated evenings, this event features a cocktail reception, three-course dinner, and the presentation of PDAC's five prestigious awards, followed by the Nite Cap reception. It offers a unique opportunity to celebrate achievement, connect with industry leaders, and enjoy an evening of networking and inspiration.

2026 PDAC AWARDS RECIPIENTS

Bill Dennis Award: For a Canadian discovery or prospecting success

Canadian Royalties Exploration Team – For the discovery of the Inukshuk Deposit in Nunavik, Que., Canada.

Skookum Jim Award: For Indigenous achievement in the mineral industry

Des Nedhe Group – For advancing Indigenous entrepreneurship and community-led economic development across the mineral industry in Sask., Canada.

Sustainability Award: For outstanding leadership in environmental protection and/or good community relations

Blue Lagoon Resources – For commitment to sustainable development and Indigenous partnership at the Dome Mountain Gold Project, B.C., Canada.

Thayer Lindsley Award: For an international mineral discovery

AngloGold Ashanti, Renaissance Gold, and Callinan Royalties – For the discovery of the Silicon and Merlin gold-silver deposits (Expanded Silicon Project, now Arthur Project), near Beatty, Nevada, U.S.

Viola R. MacMillan Award: For leadership in management and finance for the exploration and/or development of mineral resources

Equinox Gold – For the acquisition, financing, and development of the Greenstone Mine in Geraldton, Ont., Canada.

AWARDS SELECTION PROCESS

PDAC's Board of Directors select award recipients based on recommendations of the association's Awards Committee/ Awards Celebration & Nite Cap ticket sales open on PDAC's website in December. Sign up to be notified when tickets become available.

ABOUT PDAC

The Prospectors & Developers Association of Canada (PDAC) is the leading voice of the mineral exploration and development community, an industry that employs more than 724,000 individuals, and contributed $156 billion to Canada's GDP in 2024 (Natural Resources Canada, February 2025). Currently representing over 8,200 members around the world, PDAC's work centres on supporting a competitive, responsible, and sustainable mineral sector.

PDAC 2026, our 94th annual convention, will take place in person in Toronto, Canada from March 1-4. Please visit pdac.ca for more information.

PROSPECTORS & DEVELOPERS ASSOCIATION OF CANADA

PDAC

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