K+S Potash Canada

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ks-potashcanada.com

# Opportunity Abounds at K+S Potash Canada's Legacy Site

Opportunity. It's a word that comes up time and again when talking to a team of tradespeople about why they've chosen to work at K+S Potash Canada's (KSPC) Legacy Project.

"The opportunity to move around inside this company and take on different roles is huge," says Jeff Campbell, a 32-year-old electrician from Regina who's been working at the Legacy mine site for less than six months. "I'm actually moving to a production supervisor role. That's unusual because most people in a trade stay in that trade."

Campbell is part of a six-person maintenance team supervised by Casey Olson and Aaron Holma. The team is made up of two electricians, two industrial mechanics and two instrumentation technicians – make that three electricians and three mechanics if you include Olson and Holma. It's their job to ensure equipment at the $4.1 billion Legacy Project purrs along without a hitch. Campbell's spare time is largely governed by the needs and wishes of his four children.

Team member Brad Forsyth, an instrumentation technician from Regina, pursues a handful of hobbies in his spare time. "I love hiking, kayaking and car racing," says Forsyth, 36. "And I just took up ice climbing too." Forsyth says he likes working for a cutting-edge company with new equipment that's not breaking down all the time. He also appreciates the fact everyone at the mine site is friendly and approachable. "Here, you're an integral part of the system, not just a cog in the wheel. You have a say, and it's challenging. You don't just come to work and do the same thing every day."

"We get more support and training here," says Michael Pawlychyn, 47, an industrial mechanic from Regina. Opportunities and challenges are what drew Pawlychyn to work at KSPC – he and all other team members use the company bus service, which offers two-way transportation to the site from Regina and Moose Jaw. "I've had friends who've asked, and I tell them to get their resume done up and get it in," says Pawlychyn. "There are lots of opportunities here to move laterally or up."

Supervisor Olson, 43, is married with two children and came to KSPC two years ago from a mining job in Thompson, MB. He says the remote area had certain attractions for those who enjoy the outdoors. But when he took the job, he told his wife they'd be living in Thompson for just a few years. "It ended up being 10 years," says Olson, a Harley-Davidson aficionado who now lives in Regina. "We're closer to family down here, and civilization, too."

When he's not supervising the maintenance team with Olson, 35-year-old Holma can be found coaching baseball for his son's Mosquito team, camping or playing guitar. "I was in a band, but I play on my own now," says Holma,

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## Did you know?

**It will take...**

**35,000**

tons of steel to build the Legacy Site

vs.

**24,000**

tons of steel to build the Titanic

vs.

**7,300**

tons of iron to build the Eiffel Tower

and

25,000

truck loads of **foundational concrete**

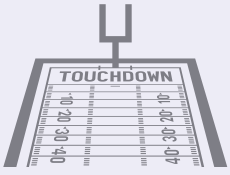
**There are...**

more than 30 cranes on site throughout the build

**6 well pads on-site:**
(1 pad = 18 wells = 9 caverns)

and

You can fit approximately **2 CFL regulation fields** across **1 of our caverns**.




That's equivalent to **108 underground CFL fields!**

Tanner Kittler, Instrumentation Technician and Aaron Holma, Maintenance Supervisor, Wellfield

# Opportunity Abounds at KSPC's Legacy Project

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who also has a three-year-old daughter. His favourite guitarists or guitar groups include jazz greats Miles Davis and Django Reinhardt, as well as rock stars Stevie Ray Vaughan, Eric Clapton and Led Zeppelin.

> **Holma, who's been at KSPC since June, says he's particularly impressed with the company's strong focus on self-development. "The sky is pretty much the limit here," he says.**

At 26, instrumentation technician Tanner Kittler has already worked at three other potash mines. One of the big things that attracted him to KSPC is the mine's proximity to Moose Jaw, where he lives with his wife and their two dogs. Now that he's been working at the mine for about six months, he's found other reasons to appreciate KSPC. "A lot of the mines I've been at, you're kind of by yourself. Here, everyone works together. Everyone's involved and you have a lot of different heads to fix problems."

Trevor Tenetuik, an industrial mechanic from Moose Jaw, is also impressed with KSPC's team approach to work. "They say it's a big team and it really is a big team," says Tenetuik, 34.

Recently married, Tenetuik enjoys spending time at the lake and supporting his stepson in his hockey and baseball pursuits. Travel is high on his list of interests after experiencing the energy of New York City on his honeymoon.

Jason Nernberg, Electrician, and Jeff Campbell, Supervisor, Dry End Production

Electrician Jason Nernberg, 34 and married with two kids, enjoys learning new things by working with other trades. But he says it's the people at KSPC that make all the difference. "I've told other people that it's great here and they should apply," says Nernberg, who lives in Moose Jaw. "It seems like everybody here is willing to work together. There's a lot more smiles on peoples' faces than I've seen anywhere else."

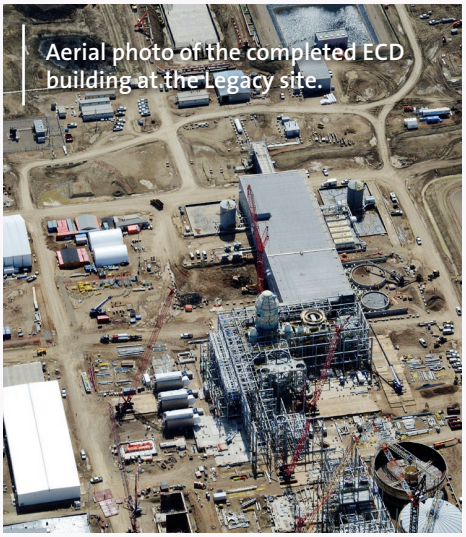
KSPC, named one of Saskatchewan's Top Employers in 2014 and 2015, plans to fill more than 150 new positions in the coming year. The company is mostly seeking tradespeople, as well as operators with a Grade 12 education and experience in an industrial setting.

Trevor Tenetuik, Industrial Mechanic

Interested individuals may apply for posted jobs and keep an eye out for new ones on KSPC's career page.

**ks-potashcanada.com/opportunities**

# Legacy Project Celebrates Early Cavern Development Milestone



Aerial photo of the completed ECD building at the Legacy site.

K+S Potash Canada's (KSPC) Legacy Project reached a major milestone on March 5 when the mine began developing the caverns that will supply potash-rich brine to the process plant.

"On March 5, we began mining," says Trevor Dyck, Production Manager for KSPC. "We're not shipping product yet – that's coming. But we are mining. And for me, that's super exciting."

The milestone is called, "early cavern development" and it's taking place 1,500 metres (one mile) underground in the ore zone. Each cavern is developed using the mine's powerful waterworks system to inject fresh water and pump out the resulting brine through two boreholes situated 80 metres apart. This flushing action erodes the water-soluble salt and potassium and ultimately results in connecting the two boreholes to form a single cavern. Each cavern must be "grown" large enough to supply "feed" to the process plant. It's a ramping-up process that will see 36 caverns ready to feed the plant by the time the Legacy mine goes into production.

"We've made a transition here from a design-engineering-construction project to one where we're in the early stages of operating a plant," says Dyck.

Construction, engineering, commissioning and operational readiness teams from KSPC and Amec Foster Wheeler, the Legacy Project management company, celebrated their collaborative achievement March 5 at a gathering in Bethune, Sask.

Darren Hrynkiw, Manager, Wellfield for KSPC, oversees the operation of the wellfield, where drilling rigs on wellpads created wellbores that tap into the underground resource. A network of pipelines and related infrastructure are used to circulate fresh water through the developing caverns and return the resulting brine to the tank farm. Once the caverns have been developed to a sufficient size they will be ready to return brine to the process plant.

"There's a good deal of time required to grow these caverns until they're substantial enough in size," says Hrynkiw, adding that the process takes about a year. "That's why, even though we've now officially started up, we're not yet making potash."

Preparing all the new equipment and other assets required to bring the mine into operation was a task demanding close cooperation among many people and departments. The failure rate of new equipment – what maintenance experts refer to as "infant mortality" – is significantly higher at start-up operations than at existing mines where assets have been regularly maintained. That's why Marc Colombet, Maintenance and Reliability Manager for KSPC, had mixed feelings when mine operators "hit the switch" on March 5.

"We were nervous because you never know what can happen – you know that you will have some trouble," says Colombet. "But there was more excitement than nervousness. Our team was very, very excited."

Colombet's job was to design and implement a maintenance and reliability strategy that ensures "we manage the asset and that we will not be managed by the asset." This involved a good deal of training and getting to know all the equipment by measuring vibrations, temperature and noise, as well as analyzing the equipment's oil in order to detect as soon as possible any hint or clue something might go wrong. Colombet says it took about four weeks to iron out the biggest issues arising from startup.

"Our team is fully and completely in operation mode now," he says. "We know the equipment, we know the people and we know the organization. The stress from the startup period is over."

Aerial view of one of Legacy's pad sites.

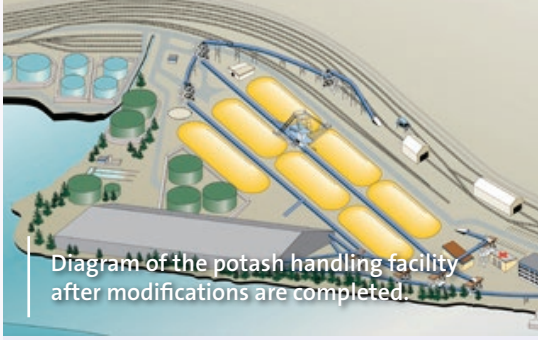


Diagram of the potash handling facility after modifications are completed.

## Construction to Begin on West Coast Handling and Storage Facilities

The planned handling and storage facility in Port Moody, B.C. that will be used to move Legacy Project potash to international clients has received a project permit from authorities following a comprehensive environmental review and consultations with First Nations and community representatives.

"This project permit allows us to start the work, things like clearing and site preparation work that must be done in order to start piling," says Dr. Martin Ponzlet, Project Manager of the Port Project for K+S Potash Canada (KSPC).

The permit relates to the construction of a new rail car unloading station, new covered conveyor systems, systems to control dust emissions and a new 160,000-tonne-capacity warehouse. It was issued to Pacific Coast Terminals (PCT), which leases the land in question from Port Metro Vancouver, an independent corporation accountable to the federal Minister of Transport. PCT signed a partnership arrangement last year with KSPC that will see the two parties construct the facilities; PCT will operate them.

"There were a lot of permits that needed to be obtained but this is the most important one and the one that takes the most time," says Ponzlet. "This is the one that says our design is in compliance with the relevant environmental codes and good to go."

Construction of the new facilities is scheduled to be completed in the latter part of 2016.

**If you have questions or concerns about the Legacy Project, please call the K+S Community Hotline at:**

**1-855-385-8686 ext. 2999**

Construction at the Legacy site continues on time and on budget.

# German and Canadian Engineers Collaborate to Build a Legacy

A collaborative effort combining the best of German and Canadian engineering and leadership, and marshalling the talent and experience of hundreds of engineers, has successfully advanced the $4.1 billion Legacy Project through the detailed engineering phase. The work was carried out on time and with a design that meets the business case of eventually producing 2.86 million tonnes of potash annually.

"We, in our department, are now shifting our focus from detail engineering to monitoring the quality of the pieces manufactured and installed and supporting field engineering," says Markus Midden, Vice President of Engineering for K+S Potash Canada (KSPC). Field engineering is a term that describes dealing with the gaps, clashes, errors and design failures that inevitably arise during the engineering and construction phases of such large projects, he explained. But while Midden applauds the collaboration between German and Canadian engineers working with Amec Foster Wheeler (the project management firm) he notes the process took time.

"Everything wasn't perfect and brilliant at the beginning," says Midden. "We all had to go through a learning curve. Amec had to understand how we normally work on projects. And we, as Germans, had to learn that we can't just take the engineering approach we use in Germany and apply it here."

Dave Myers, Amec technical director on the Legacy Project says, "We had to figure out how to bring it together, see what everybody does best and build the best mousetrap. I think we did pretty well there."

Finding that "best mousetrap" involved a series of reorganizations that eventually saw KSPC engineers operating within a Technical Authority Team (TAT) responsible for all technical content of the project. Amec engineers worked as the Legacy Project Execution Team (LPET) providing options and recommendations to TAT and then carrying out TAT's decisions.

Midden and Myers agree a key move saw German engineer and project management specialist Jochen Kirn embedded in Amec's LPET team as integration manager for the two groups. Kirn worked closely with Myers – their offices were located next to each other – but also kept in close contact with TAT. Kirn's understanding of how Amec carries out projects and his background in project processes and procedures played an important role in helping the two groups work together.

"As the owner's team, we learned to concentrate our efforts on what we know best, and that is what we've been doing for more than 100 years producing potash. It's not developing greenfield megaprojects in a western Canadian construction environment, let alone climate," says Kirn.

"Communication and trust were absolutely key to making the process work," says Thomas Papst, Senior Area Manager, Process Plant for KSPC and a lead on the TAT team. But he said these are things that can take time to develop, especially when different cultures and languages are at play.

Papst agrees Amec has a good deal of experience working with large potash projects and contractors in Western Canada. But he points out German engineers have many years of experience dealing with potash mines in Europe – KSPC's parent company, K+S Group, has five active potash mines right now. This gave the German side more up-to-date knowledge of the technological advances in potash mining, he says.

> **"Both sides brought advantages," says Papst. "In the end, I think the mix of both ended up being the best way to do things."**

"Anytime you work through difficulties with somebody, it builds a very strong relationship. We had to adapt and overcome, and we did it together," says Myers.

## KSPC Rail Car Testing is "Promising"

A test rail car similar to the ones that will be used to transport K+S Potash Canada (KSPC) potash from the Legacy mine near Bethune to Port Moody, B.C., and other North American destinations, appears to be performing well under working conditions.

Steffen Brill, Senior Manager, Logistics and Transportation for KSPC, says the rail car is being tested through a partnership with the Yara Belle Plaine facility. Yara is using it to haul granular urea to a warehouse in Alberta. The rail car, manufactured and modified by National Steel Care Limited, accommodates KSPC's high-speed loading needs. KSPC officials periodically monitor the loading process at the Yara facility, located an hour's drive south of the Legacy site.

"We started testing the car early this year and we anticipate a testing cycle of six to eight months," says Brill. "So far, there are no issues with the opening mechanism, for loading, and the gate mechanism, for discharging. It's looking promising."

Once the Legacy mine reaches two million tonnes of production capacity by the end of 2017, potash bound for port is expected to be transported twice weekly by a train 2.6 km in length and featuring five locomotives and 177 rail cars.