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2016 SPRING
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SPECIAL TRANSPORT ISSUE

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The Biggest Move
Page 9



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COVER PHOTO
Canpotex railcars carry potash across the Prairies to tidewater in our cover photo. Moving commodities from Saskatchewan to markets around the world is a logistically complex process, but the province's mining companies are world leaders in meeting the challenge. This edition of ORE highlights the transport of people, goods and commodities within Saskatchewan and around the world.

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A MESSAGE FROM SMA PRESIDENT, PAM SCHWANN



how going places is key in the lives of Marc Lepage, Manager, Investor Relations, at Claude Resources, who is featured in the Tagging Along article; and of Ulrich Lamp, President and CEO of K+S Canada, in the Beyond the Bio article.

Fires were a significant issue for Saskatchewan and northern Saskatchewan in particular this past summer, and as we head into another potential fire season, it was an opportune time to reflect on how wildfires impact exploration and mining operations. Again, transportation of goods and people was profoundly affected by fire and smoke.

As we headed to print for this edition of ORE, we had a "stop the press" moment as the Fraser Institute had just released their 2015 Survey of Mining Companies, and we had some good news to share. For the second year in a row, Saskatchewan was named as the number one jurisdiction in Canada and second in the world, behind Western Australia, for attracting mineral investment.

This ranking reflects the geological potential of an area and the effects of government policies on mining and exploration investment. As a province, we are fortunate to have an underlying geological framework that hosts diverse, world-class mineral deposits, and the intelligence to ensure policies are in place to support the sustainable development of those resources.

It is apparent, however, that there is work to do to ensure the policies are in place to transport those resources to communities around the world that want and need our resources.

Transportation is a key cog in the mining supply chain and this theme is woven into many stories contained in this edition of ORE. Our stories examine how products are moved to market; the varied ways that people commute to rural and remote mine sites; and finally,

A conclusion of the cover article on transportation is the importance of capacity in the system and ultimately the imperative of being able to move oil via pipelines so this product doesn't continue to displace capacity from other Saskatchewan-produced products.

Pipelines offer a safer, more efficient and cost-effective way to transport oil. The federal government has indicated that it supports exporting oil with the qualifier that pipeline projects must have the public's confidence. We have an opportunity to ensure that the federal government clearly hears from all of us that pipelines are the transportation vehicle of choice for oil. Not only will this get a needed product safely to market, but it will release rail capacity for other Saskatchewan products such as potash, lentils, canola, wheat and manufactured products to be exported. As a trading nation, and that is what we proudly are, our reputation to deliver to our markets in a timely and reliable manner is at risk.

The world wants what Saskatchewan produces, but we need to get it there first. Let your voice be heard.

2015 SMA SCHOLARSHIP RECIPIENTS

The Saskatchewan Mining Association is proud to provide scholarships to three post-secondary students each year. The SMA Environmental Engineering Scholarships are presented to students at the University of Regina and the University of Saskatchewan, while the Power Engineering Award is presented to a student at Saskatchewan Polytechnic. Congratulations to the 2015 winners.

Bryce Marcotte, U of S winner

Bryce Marcotte grew up in Moose Jaw, Saskatchewan. Entering school, he would have never envisioned entering environmental engineering. It wasn't until his first year of university that he became interested in remediation projects and the unique challenges within the environmental discipline. A highlight of his university career was his involvement in the development of CE Light — a device aimed to facilitate access to proper and affordable lighting in the developing world. CE Light was selected as a top five undergraduate technology in Canada in 2015. In his spare time, Bryce enjoys playing on multiple basketball teams. After graduation this May, he is looking forward to any opportunities that lie ahead as he begins a career in environmental engineering.



Smith Le is currently a second year college student enrolled at Saskatchewan Polytechnic in his hometown of Saskatoon. He is working toward becoming a fully qualified power engineer and will graduate in May, 2016. From there, he hopes to start working full-time in the industry in the province of Saskatchewan. Before college, he graduated from Bethlehem Catholic High School with honors in French Immersion. He is fluent in French, English and Vietnamese. Outside of school, he works part-time on weekends. If there is room for free time in his life, it would include fishing, going to the gym and being active outside.



Smith Le, Sask. Polytechnic winner

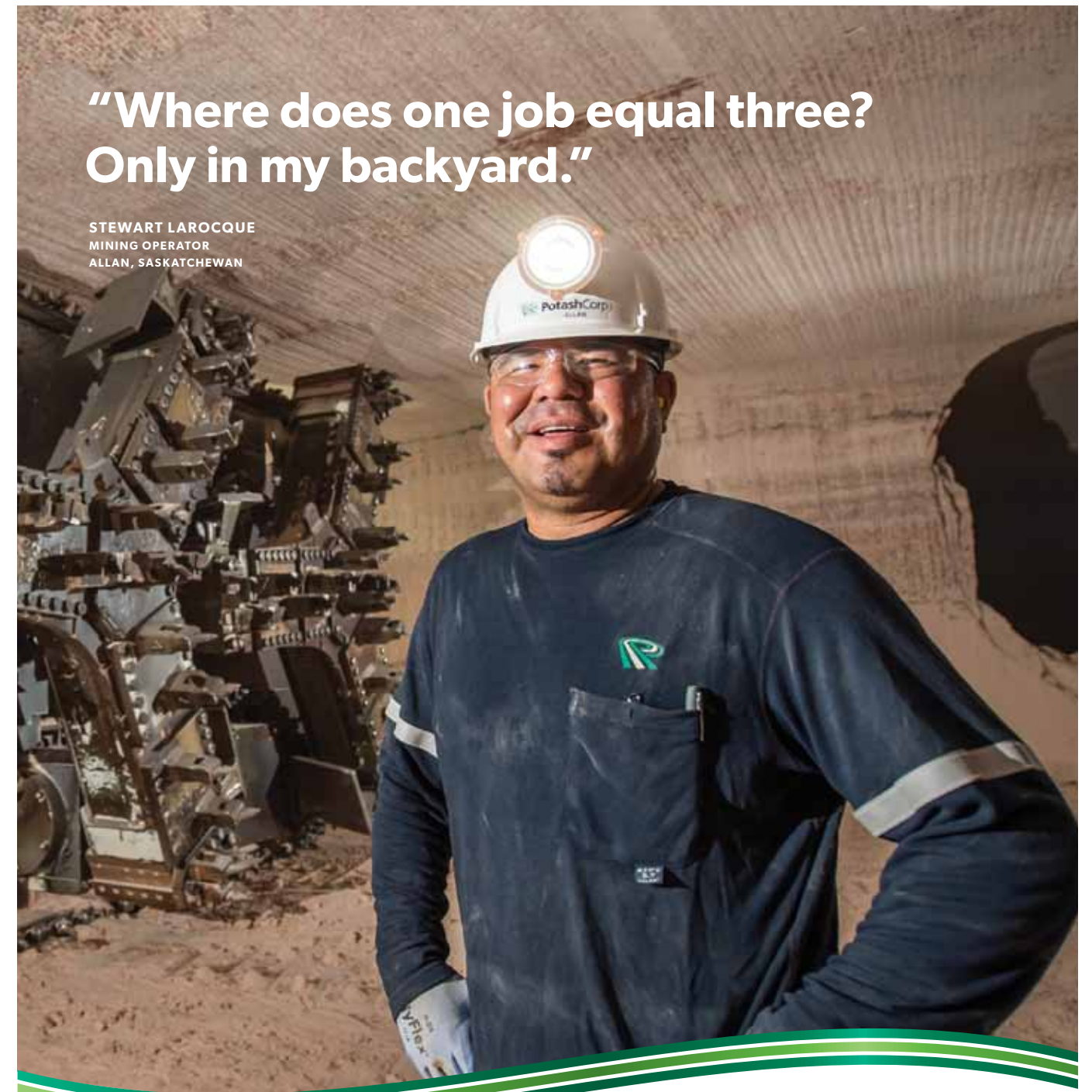
Smith Le is currently a second year college student enrolled at Saskatchewan Polytechnic in his hometown of Saskatoon. He is working toward becoming a fully qualified power engineer and will graduate in May, 2016. From there, he hopes to start working full-time in the industry in the province of Saskatchewan. Before college, he graduated from Bethlehem Catholic High School with honors in French Immersion. He is fluent in French, English and Vietnamese. Outside of school, he works part-time on weekends. If there is room for free time in his life, it would include fishing, going to the gym and being active outside.

Hebly Cushicondor, U of R winner

Hebly Cushicondor came to Canada from Ecuador in 2010 to pursue an undergraduate degree in environmental systems engineering at the University of Regina. Her inspiration to pursue this degree was a documentary



she watched in high school, aimed at raising awareness of global warming and its relationship with greenhouse gas emissions. Through her studies and work terms, she has gained experience in diverse areas including sustainability and energy efficiency, soil nutrient analysis, waste management and occupational health and safety. She is currently in her last semester and is looking forward to starting her career. She is excited to embark on this new journey, which she is sure will have many challenges along the way and will help her grow as a professional.



“Where does one job equal three?
Only in my backyard.”

STEWART LAROCQUE
MINING OPERATOR
ALLAN, SASKATCHEWAN

“I’m proud to be one of over 2,300 Saskatchewan residents who work for PotashCorp. But I’m even prouder of this: For every person like me that PotashCorp hires, three more jobs are created. How’s that for positive economic impact? And they’re only in my backyard.”



PotashCorp.com/Nourish



On the MOVE!

Taking Saskatchewan commodities to market logistically complex

Uranium travels from hundreds of kilometres north of Saskatoon to markets around the world. Potash is loaded on to railcars from nine southern Saskatchewan mines and transported into the U.S. and overseas.

This land-locked province is a fertile ground for resources, but challenged by distance and transportation options to get its mined commodities across borders and to tidewater. It's an incredibly complex logistical task, but Saskatchewan's mining companies are world leaders in meeting the challenge.

"We have exceptionally skilled logistics people within the mining companies," said Steve McLellan, CEO of the Saskatchewan Chamber of Commerce. "Quite frankly, we have become a centre of excellence in the mining sector."

Mining companies know that their supply chain is long, complex, and that it's incredibly important that it be done well, said McLellan.

"Our mining sector has done an exceptional job in figuring this out. For example, Canpotex

owns and operates its own fleet of railcars."

Canpotex, the potash marketing and logistics company that sells and delivers PotashCorp, Mosaic and Agrium potash overseas, recently added 700 new, purpose-built railcars to its already-substantial fleet, totalling 5,700 railcars.

The Canpotex railcars collect potash from the mines, and move approximately 11 million tonnes to market each year. About half of that comes from PotashCorp mines, 40 per cent from Mosaic and 10 per cent from Agrium.

"We become masters of our own destiny by controlling our own fleet," said Canpotex president and CEO Ken Seitz, who joined the company in November, 2015. He notes that Canpotex also has its own \$60 million railcar maintenance facility near Lanigan, Sask.

"One of the real offerings Canpotex has is our reliability and expertise in that supply chain. We want to control as much of that supply chain as we can," he added.

But it's a massive undertaking.

"You can imagine how logistically complex that is," Seitz said. "We collect potash at our shareholders' mine sites, and load 100,000 cars heading to ports every year."

The cars are then picked up by the railroad companies, Canadian National Railway (CN) and Canadian Pacific Railway (CP), on the main lines. The potash rolls through the Prairies to Can-

These are going to over 100 customers in 34 countries. Last year, we visited over 550 ports with those 225 vessel voyages."

The scenario for uranium and gold is considerably different. These commodities are mined in remote parts of northern Saskatchewan, where rail service is out of the question.

Cameco, AREVA and Claude Resources are therefore reliant

At the ports, we load up on average 225 vessels going to various ports all over the planet.

KEN SEITZ, CANPOTEX PRESIDENT AND CEO

potex's terminals at the ports of Vancouver and Portland, Oregon, and in the very near future the exporter will use the Saint John, N.B. port as well as a fourth port Canpotex is contemplating at Prince Rupert.

"At the ports, we load up on average 225 vessels going to various ports all over the planet.

on trucking, and much of that service is provided by Northern Resource Trucking (NRT).

President Dave McIlmoyl says those three companies make up 95 per cent of NRT's business. His company has 180 employees and operates 120 trucks, 200 trailers and logs 10 million miles per year, he said.

Most of the loads begin and end in Saskatoon, although NRT's head office is on reserve in La Ronge. The company is 71 per cent aboriginal-owned.

NRT hauls supplies and mining inputs of various kinds to the north, and then returns with yellowcake. RSB Logistics takes North American-bound yellowcake from Saskatoon to its destination. NRT is licensed to haul yellowcake from British Columbia to Quebec.

The specifications for NRT trucks are ramped up for the conditions they travel in, and the products they carry.

"We spec the trucks to be able to pull the loads, and provide reasonable repair costs over the time we use them," he said. "We typically keep a truck for five years, and it will have 800,000 kilometres on it."

McIlmoyl added that NRT has one of the best safety records in

North America, on top of competitive rates and great pride in its service.

"We have a very low turnover; we'd be well under the average in North America. We have seven owner-operators that started with us in 1986, and many 15-to-20 year contractors."

Preparing for the future, tackling the challenges

While transportation is generally working fairly well, barring unforeseen circumstances, the future may be more challenging.

While the province exported \$32 billion worth of goods and commodities in 2013, the provincial government believes that number could rise dramatically, if transportation can accommodate the growth. Its goal is

\$59 billion in exports by 2020 — almost doubling 2013's total.

For that reason, the Saskatchewan Chamber recently commissioned a report by the Conference Board of Canada, entitled The Impact of Rail Access on Saskatchewan's Export Potential.

Two years ago, when the farmers of the province produced a bumper crop, rail access became a national issue: the railways could not keep up with the huge amount of grains and oilseeds. At the same time, oil producers, facing limited pipeline capacity, were increasingly shipping crude oil by rail.

The Chamber, the province and the federal government all weighed in on the challenges, asking whether Saskatchewan's future might be constrained by transport. The Saskatchewan Mining Association also contributed its views to the rail review

being conducted by the Canadian Transportation Agency.

The Chamber's McLellan said the main recommendations provided in the Conference Board report that pertain to mining are better and timelier communications across the supply chain, resolving competition for rail space, and ensuring rail lines honour the common carrier obligation to transport materials.

On the timing front, unforeseeable things do happen — such as very bad winter weather and bumper crops — that prevent locomotives from arriving as scheduled. Informing customers about such problems would go a long way toward solving issues and meeting deadlines.

The competition for rail space is a complex problem that spans many industries, involving everything from pipelines for oil,

2020 Projected Increase in Railway Originating Tonnes from Saskatchewan, Key Commodities, in thousands of tonnes

COMMODITY	2012 ACTUAL	2020 PROJECTION	NET INCREASE
POTASH	12,548	21,575	9,027
PETROLEUM PRODUCTS	1,526	7,720	6,194
AGRI-FOOD PRODUCTS	16,481	21,340	4,859
TOTAL	30,555	50,635	20,080



Northern Resources Trucking hauls supplies to northern Saskatchewan and returns with commodities.

uncertain crop levels and production of potash.

“One thing that has changed twice in the last five years, is the amount of oil that’s shipped by rail,” said McLellan. “At the point when it was peaking, we had the bumper crop, which compounded the congestion on the rail lines. The mining companies had still more competition for rail space.”

McLellan said he hopes the present review of the Canada Transportation Act will be positive for Saskatchewan, and that the various recommendations from the Chamber, the SMA and others will be accepted.

Over the last six years, the potash sector in Saskatchewan has invested over \$15 billion in expansions to existing (brown-field) mine operations and more than \$7 billion in new mine projects (greenfield).

Pam Schwann, SMA President, noted that with positive market conditions, these investments will potentially more than double the production from Saskatchewan potash mines.

“This increased potash production will require additional rail capacity. In 2014 the potash industry wasn’t producing at capacity, so it wasn’t shipping record amounts of potash, like

the oil and agriculture sectors were. When potash demand picks up, we need to ensure there is sufficient rail capacity to reliably transport all products (minerals, oil and agriculture) to market. If not, increased inventories on site may lead to temporary production shut downs and consequent layoffs.

“The consideration that all exporters need to be aware of is that oil will come back up, and there will be demand to move it to market.”

The Conference Board of

Canada report clearly lays out how quickly demand for rail cars can shift. In 2012, potash volumes represented 41 per cent of all rail traffic from Saskatchewan, with oil making up just five per cent. In 2013, oil shipments dramatically increased, making up 35 per cent compared to 27 per cent for potash shipments. Alternative capacity or alternative transport mechanisms are required to relieve the anticipated rail congestion that will come with the province’s plan to double exports by 2020.

And that means pipelines.

“If we had pipelines going south or east, there would be more room on the rail. And if there were direct routes going south, there would be more (rail) space to go to tidewater,” said McLellan.

McLellan’s view was strongly shared by the Sask. Party provincial government.

“Our government believes pipelines are the most efficient and the safest way to transport oil or natural gas from our province to markets,” Bill Boyd,



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The Biggest Move

Massive equipment makes 200 kilometre journey to K+S Legacy Project potash mine



It is not just the people and products of mining that are on the move in Saskatchewan.

Supplies and equipment are also constantly being shipped around the province. Yet none have ever been as massive as the salt crystallizers and evaporators transported to the K+S Legacy mine project near Bethune, Sask.

In late January, 2015, two crystallizers were picked up at JNE Welding in Saskatoon and placed on enormous flatbed trailers. Each unit measured 11.6 metres high, 10.1 metres wide, 56.7 metres long, and weighed 330 tonnes.

They crawled toward Bethune at a speed of 30 to 40 kilometres per hour, taking three days to cover a distance that takes two hours by car.

Two other, slightly smaller vessels called evaporators were also shipped, separately.

The vessels are crucial parts of the K+S process at the solution mine in southern Saskatchewan. Potash is retrieved by injecting water underground; the slurry is brought to surface into the evaporators and heated. The potash solution then flows

into the crystallizers, which cool the solution and produce solid potash.

The Legacy mine is the first greenfield mine in Saskatchewan in almost 40 years, and is expected to start producing potash in late 2016.

Veolia Water Technologies of Plainfield, Illinois supplied the equipment to K+S. Marketing Manager Tim Cornish explained that some of the vessels were built in Saskatoon; others were so big, the components had to be transported to site, and manufactured there.

“When these systems are being designed, you have to have the logistics in mind,” said Cornish. “Three were assembled on site because we knew those could not be transported over the road.”

The logistics were daunting, and took an entire year to put in place. Veolia co-ordinated with the Saskatchewan Department of Highways, SaskPower (which had to raise 30 powerlines to accommodate the 40-foot-high equipment), all the municipalities between Saskatoon and Bethune, and even the media.

“All those things are worked

out ahead of time. There’s constant communication as well. If we’re behind schedule, we have to let everybody know. If we’re ahead of schedule we have to let everybody know,” said Cornish.

“It’s a massive undertaking. It’s big news up there. I had radio stations calling to ask, ‘when is it coming through?’”

Veolia Water Technologies is known for the design and supply of enormous equipment for industry, and has done a lot of work in the Alberta oilsands.

“For these large projects, we’re among very few people who can do that, who have the capabilities to pull off something like this. We tend to do very large, complex projects,” said Cornish. Still, it’s only a part of the whole undertaking.

“A small, big part of it,” he added, laughing. “This is one of the largest systems of its kind that we’ve done. It’s definitely going to be the largest plant of its kind in Saskatchewan.”

“We have done work in Saskatchewan before, but nothing of this scale. Just the sheer size of each individual vessel and the overall capacity, is astounding.”

Saskatchewan minerals on the move by plane, train and semi

PLANES – move out the gold product produced at Claude Resource’s Seabee Mine

TRAINS – move potash, uranium and coal (private shortline rail between Poplar River coal plant and Poplar River)

SEMIS – move yellowcake (uranium), some potash

ment to see that all of those areas are working as efficiently as possible.”

Boyd added that he is optimistic the federal government is starting to realize how important Saskatchewan and Alberta are to the wider Canadian economy, and that may contribute to higher acceptance of pipelines. ▲

The Great Commute



Mine employees drive, bus, and fly long distances to work

Cameco employees board a plane en route to work in Saskatchewan's north.

Interesting weather, long distances, gravel roads, operations located deep underground.

These are but a few of the challenges faced by Saskatchewan's mining companies when getting their people to the work sites.

Whether it's north or south, east or west, Saskatchewan mines and their employees have come up with their own transportation solutions, and some of them are as complex as getting the commodities themselves to market.

To reach the potash mines, for example, some commute from miles away; and for many miners, getting to the site is just the beginning. Those who work underground take a quick elevator ride deep into the earth, often a kilometre down. Then, they often can travel up to another hour to the mine face.

Kyle Pfeil is one of these commuters. The maintenance planning co-ordinator at Mosaic's Colonsay mine lives in Bethune, and commutes every day. He works mainly on surface, but sometimes goes underground to participate in safety training.

He's up at 4:30 in the morning, leaves at 5 a.m. and arrives at about 6:30 for his 7 a.m. start.

"That gives me enough time to get my day started, check my

messages, and then we start every day with a toolbox safety meeting," said Pfeil.

"I actually don't mind the morning drive. It's kind of relaxing. You drink your coffee, listen to the radio, catch the news.

"I'm used to it. I've worked here for seven years."

Only extremely bad weather, or a very late day, will keep him from his commute. Then he will stay in Watrous overnight, which is closer to the mine than Bethune.

"The few times I've stayed in

Saskatoon and Humboldt as well as from the neighbouring communities such as Young, Watrous, Colonsay, Bruno and Viscount.

K+S Potash Canada has brought on another form of transportation to ease the daily commute.

Some employees at the K+S Legacy mine project were commuting an hour to and from work, including a 20 kilometre stretch of gravel road.

"Some people just aren't that comfortable with driving on

employees to park in the stores' lot and hop on the shuttle.

The service was successful, leading K+S to make the shuttle a permanent program. It has other advantages, both to K+S and the surrounding community, as well — safer commuting, less traffic and less dust.

"When you're trying to grow and retain your workforce, it's an effective feature to be able to offer employees," said Farris.

Transportation to the northern uranium mines is very different. Distances from communities — even those located in the north — have made flying in employees the only realistic option.

Cameco employees are all flown in directly to site, said Jean Alonso, director of transportation and materials management. Each site has its own airstrip.

"There are 76 flights a week, from all the various pick-up points," said Alonso. "The majority of our travellers, our mainline travellers, come from Saskatoon, Prince Albert and La Ronge. We do about 27 flights a week for them."

Cameco moves about 2,600 people every week, in and out of the sites, from 20 pick-up points. The company's four northern work sites — McArthur River, Cigar Lake, Key Lake and Rabbit Lake — employed 2,554 people at the end of December, 2015,

It's a really good place to work. There are good people, good wages and lots of opportunities. The commute is worth it.

KYLE PFEIL, MOSAIC – COLONSAY MINE

Watrous, it's almost like I get to work too quickly," Pfeil said, with a laugh.

"It's a really good place to work. There are good people, good wages and lots of opportunities. The commute is worth it."

People commute to the Colonsay mine from Prince Albert,

gravel," said Sam Farris, general manager, operations for KSPC. "It's also harder on vehicles than pavement is."

Hearing the employees' concerns, K+S began a trial shuttle service. In Moose Jaw and Regina, the company set up a partnership with Superstore and Home Depot, allowing K+S em-

including 1,620 Cameco employees and 934 contractors.

Cameco has a corporate flight desk made up of a team of four people. They work directly with the mine site flight clerks to coordinate the site requests and liaise with the airlines, WestWind Aviation and Good Spirit Air Services. Employees work a week-in, week-out rotation, while con-

but, for example, the closest site is a 10 to 12 hour drive from Saskatoon, depending on conditions.

"The closest community by road would be Pinehouse; it's still about 200 kilometres away from Key Lake. It's just not practical to commute by driving," said Alonso.

AREVA Resources also provides air transport exclusively for its employees, although workers are shuttled by bus from the Points North Airport to the uranium mill at McClean Lake.

Wade Petrishen, superintendent, logistics for AREVA, said the company flew 2,800 passengers each month in 2015.

"We fly people from eight communities, including Saskatoon," he said. "AREVA operates its own booking and room assignment system."

The flights, which operate as AREVA exclusively-scheduled charters, are currently flying nine times per week.

"The complexity of flight logistics is proportional to the level of flight activity," he added. "Because of on-going construction at McClean Lake, it can be quite hectic."

AREVA uses Saskatchewan-based airlines for its flights, including WestWind, Osprey Wings, Kreos Aviation and Transwest.



Kyle Pfeil, shown here in front of the headframe at the Colonsay potash mine, drives to work every day from his home in Bethune.

tractors' shifts vary depending on the work they are performing.

"There are no people commuting to the mine sites on their own, because of the remoteness of the sites," said Alonso. "There is road access to all locations,

Prepare an emergency car kit

Always have winter safety and emergency equipment in your car. A basic car kit should contain the following:

- Food that won't spoil, such as energy bars
- Water in plastic bottles that won't break if the water freezes (replace them every six months)
- Blanket
- Extra clothing and shoes or boots
- First aid kit with seatbelt cutter
- Small shovel, scraper and snowbrush
- Candle in a deep can and matches
- Wind-up flashlight
- Whistle, in case you need to attract attention
- Roadmaps
- Copy of your emergency plan

Source: Government of Canada

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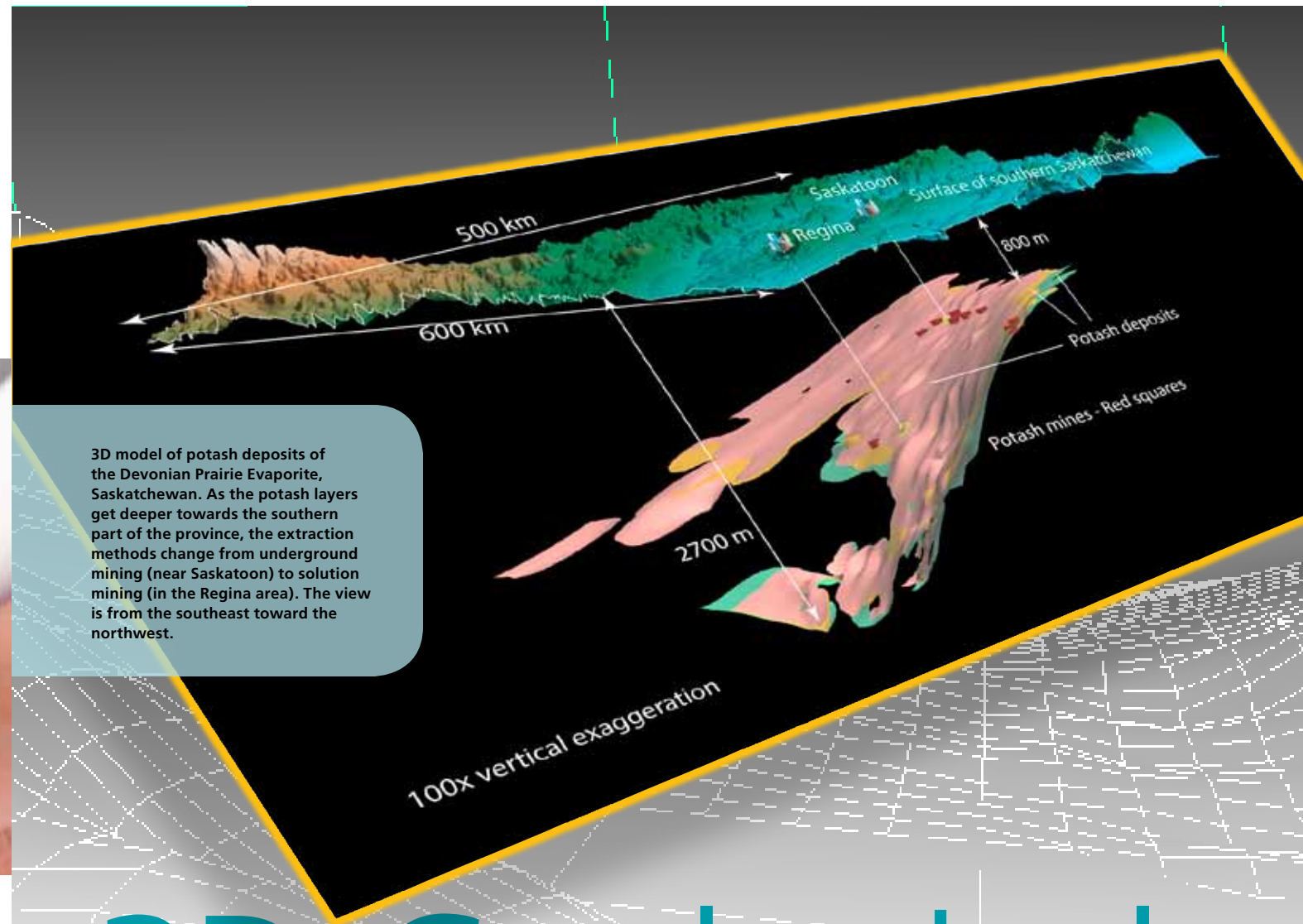
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A SUMMARY: Facts and figures of the Canadian Mining Industry



Brendan Marshall | Director, Economic Affairs, Mining Association of Canada

The global mining sector is struggling through a significant downturn in commodity prices. While adept at controlling costs and steering through uncertainty, the downward pressure on mineral prices is real and companies are feeling it.

Many commodity prices have declined. From winter 2011 highs, both nickel and copper have fallen, losing nearly 70 per cent and 50 per cent of their value, respectively. Similar trends with subtle variations are seen for silver, uranium and potash. The monthly average price of iron ore (62 per cent Fe) dropped by over two-thirds (an 86 per cent decrease) from \$187.18/ton in February 2011 to \$46.16 in November 2015. Quarterly benchmark prices for seaborne metallurgical coal have dropped from a peak of

\$330 per metric tonne in 2011 to \$81 per metric tonne in January 2016 – a four-fold decrease in value.

While downward pressure is pervasive across many commodities, some sectors of the industry are seeing improvements. For example, the price of gold has jumped nearly 15 per cent from roughly \$1050/ounce in early December to \$1210/ounce in mid-February. For context, the Canadian dollar, trading at 75 cents U.S. provides relief to Canadian miners whose costs are in Canadian dollars and but whose revenues are in U.S. dollars.

Despite challenges, the Canadian industry remains an economic stalwart, contributing more than \$57 billion in GDP (3.4 per cent) in 2014, employing 375,000 people, and

paying an estimated \$71 billion in taxes and royalties to governments over the decade through 2012. Proportionally, the mining industry is also the largest private sector employer of Aboriginal Canadians and Canada remains home to the greatest number of publicly listed mining companies in the world. The industry also supports:

- a world leading supply sector of nearly 3,700 companies
- nearly 50 per cent of total rail freight revenue generated annually;
- 10 per cent of foreign direct investment each year;
- over 18 per cent of Canada's total overall value of exports in 2014 (\$89.4 billion).

The prevailing view is that the Canadian mining industry's

economic prospects are strong over the medium and long term. China's growth, while slower and volatile at present, is still significant and over a larger base. Consumption of minerals and metals is expected to accelerate as other emerging economies, such as India, continue to grow.

It is during a downturn that industry and governments should be planning for the inevitable next upswing. Canada's ability to take advantage of the return of strong commodity prices, which some analysts predict could begin over the course of 2016, will partly depend on the policy decisions made now.

A link to the complete report: <http://mining.ca/sites/default/files/documents/Facts-and-Figures-2015.pdf>

3D Geological Modelling

Provided by Saskatchewan Geological Survey, Ministry of the Economy

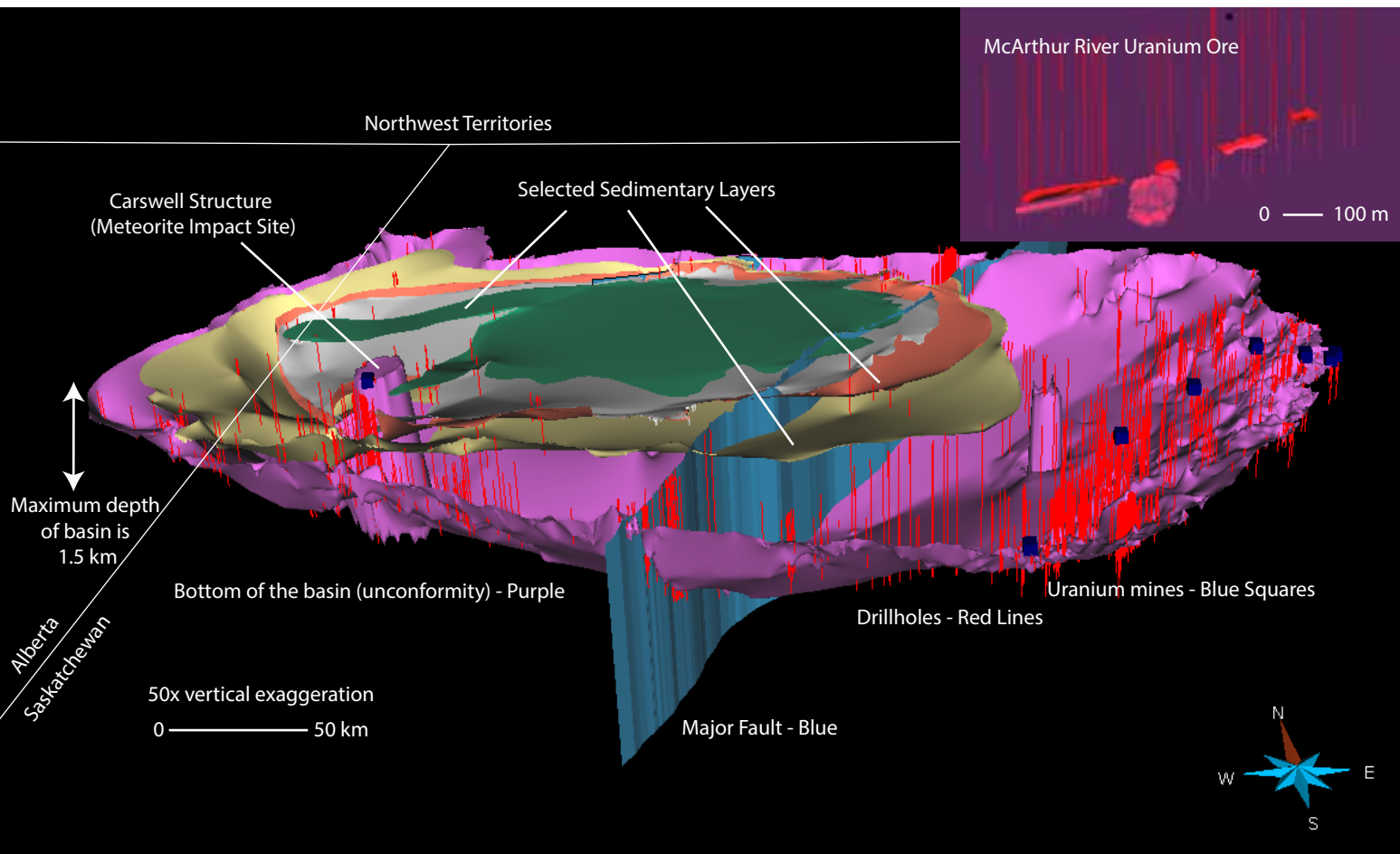
Generally, people are familiar with three-dimensional (3D) technology. 3D movies have been around since the 1950's and in recent films such as Grav-

ity. Medical examinations like MRI produce a 3D image of the inside of your body. You can even tour most of our planet's surface in 3D with Google Earth.

Today, geoscientists use 3D modelling to help visualize what is beneath the Earth's surface. These models help us to understand a variety of features such

as the nature and context of mineral, water, and petroleum resources.

We can assess the potential for catastrophic events such as



Geological features of the Athabasca Basin 3D model. This basin contains the world's highest-grade uranium deposits which are generally located near the bottom (purple) surface (also see inset).

The Saskatchewan Geological Survey (SGS) has been creating 3D geological models for almost 15 years.

earthquakes, volcanic eruptions, and landslides. It also gives us a clearer picture of the environmental and geological evolution of the Earth since forming 4.5 billion years ago.

Traditionally, geoscientists have used paper and computer software to create two-dimensional (2D) images of the geology of the earth's interior. These are typically in the form of maps and include information from the surface of the Earth recorded by geoscientists traversing the land and/or subsurface data acquired through analysis of drill holes or geophysical data. These maps determine the distribution of important geological objects buried underground.


Advances in 3D technology, computing power and software now allow us to view subsurface geological objects

and their relationships in 3D space. With this capability, geoscientists can assess geological information using an infinite number of viewing angles to make more informed decisions and conclusions about the rocks and formations they study.

Saskatchewan Geological Survey 3D Geological Modelling

The Saskatchewan Geological Survey (SGS) has been creating 3D geological models for almost 15 years. Our leadership in the field has attracted international attention and has been a main driver of various collaborations with other jurisdictions, including the South Australia Geological Survey and the China Geological Survey.

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When wildfires threaten

Saskatchewan mines affected during 2015 forest fire emergency

The flames suddenly shot into the sky about five kilometres south of Claude Resources' Seabee mine, during the hot, dry summer of 2015.

Fires were raging all over the north, in one of the worst years for forest fires on record; and for the management and staff at Seabee, they were much too close for comfort.

They watched and waited anxiously, hoping for a change in the weather, as smoke swirled around the site and the fire burned on for days.

Ultimately, most of the employees were evacuated from Seabee, as the smell of smoke seeped underground and the situation became too dangerous to wait any longer. Particularly top of mind for Claude's management was being able to get the employees out by aircraft, before it was impossible for flights to land or take off due to bad visibility.

Underground mine operations were suspended for eight days. It was one of many Saskatchewan mines to be significantly affected or threatened by the fires.

It was bad enough, but the impact could have been far worse, said Claude president

and CEO Brian Skanderbeg. "Ultimately it did not damage any infrastructure. There was potential to have major disruption to our production via cutting off power to one or both of our mines or our mill, damaging infrastructure and transformers, which would have caused catastrophic impact to our business.

"None of that happened. But that's all luck. Ultimately, we play a luck game with lightning. When lightning decides to hit a place, the prevailing wind and weather conditions push the fire to where it may be."

In the end, what stopped the fire were cooler weather conditions and a prevailing northwest wind, as opposed to a southeast wind, which was pushing the flames toward the mine.

While the 2015 forest fires in northern Saskatchewan never put any Cameco work sites at risk, they did present some transportation and logistical challenges for the company.

Operationally, Cameco sites including Key Lake, McArthur River, Rabbit Lake and Cigar Lake came away unscathed; but transportation was a challenge, said Jean Alonso, director of

transportation and materials management for Cameco.

"The key thing, when I reflect on it, is how long the situation persisted," said Alonso. "There are forest fires every year, and we'll have some road interruptions, but that will last a day or two.

"This one was unique, in that it persisted for quite a long time and stressed all our logistics systems."

Cameco flies all of its employees into the north from 20 pick-up points, while supplies are trucked in.

"On the flying side of things, as an example, La Ronge was evacuated and the airport was shut down for part of it and then commandeered for the fire support services that were operating out of there," said Alonso.

"That is one of our key pick up points, taken out of the mix for us. That created quite a bit of complication for the logistics team to deal with those travellers.

"What normally happens in those situations is we will find alternate destinations to drop them off and then arrange for transport back to their home communities.

"But the forest fires (brought) another layer of complication because the road was also closed. Eventually, the community (of La Ronge) was evacuated, so there was a lot of manifest and destination juggling that had to happen to accommodate everybody."

In addition, HudBay's operation at Flin Flon/Creighton on the Manitoba border was affected by the fires burning further away, because the mine's oxygen plant can't operate when hydrocarbon levels, affected by wildfire, reach a certain unsafe threshold.

Other mines and mills were also affected, even when not in the line of fire.

At AREVA Resources' Mc-Clean Lake uranium mill, thick smoke was a significant problem, said Jim Corman, vice-president, operations and projects. The biggest impact came from highway restrictions to the operating sites, and the closures of airstrips, affecting the ability to get people from the sites back home.

"Between the poor visibility caused by smoke limiting the ability of planes to land and the complete closure of communities and airstrips, we had

to make significant alterations to where we picked up and dropped off our employees," he said. "All our employees that were displaced by the fires did a fantastic job keeping in contact with us and letting us know where they were so we could make arrangements to bring them back to work if they so desired."

Meanwhile, Seabee had to face a second fire during the peak fire season.

"We actually went out and put out fires ourselves," said Skanderbeg. "The big one was deemed out of Claude's scope; but there was a smaller fire four kilometres east of the mine, and we had spotted it and reported it and didn't get a response. Our emergency rescue and mines personnel went out and cut a break on it, wet it down and put it out themselves."

That experience has led to changes at Seabee, he added.

"We're upgrading our emergency personnel in terms of

their understanding of fire-fighting. We have some, but it's industrial fire related, not forest fire related. There's that aspect we'll upgrade internally. Employee safety always comes first."

"observation zone."

In full response, the government will control or extinguish all fires within 20 kilometres of a community, and in some areas with high-value timber.

The modified response zone,

There's never a question among anyone that communities are first. Under the current policy, however, a mine operation isn't even second.

BRIAN SKANDERBEG, PRESIDENT AND CEO, CLAUDE RESOURCES

Mining operations, and the Saskatchewan Mining Association, are hoping the provincial government will change its fire-fighting protocols in the near future. In 2004, mine sites were moved from the first priority category, known as "full response zone," to the third priority, or

or priority two, includes areas with fewer values threatened by wildfire. In the observation zone, fires are allowed to burn because of lower human risk and no commercial timber.

Northern mining companies, and the SMA, feel that industrial complexes should be included

as priority one zones.

"You have critical infrastructure. Despite the fact we have 150 people at our site, we're not classed as a 150 person community. We're a business."

The SMA has written to the government asking for mines to be included in the "full response zone" category, acknowledging they are communities in their own rights.

The mines are extremely important to the economy, and cost a great deal to put into production, such as the Cigar Lake operation at \$2.2 billion.

"If such a facility was lost to fire, replacing it would require a massive reinvestment and take several years to return to operation — assuming rebuilding was a cost-effective option at all," said SMA president Pam Schwann.

"In the meantime, the company, its employees, the northern economy and the province's fiscal picture would all suffer considerably."

A plume of smoke obscured the sky south of the Seabee mine in 2015

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Registration for the Standardized Contractor Safety Program for Saskatchewan Mining Association member sites is now open.

To get started, visit saskpolytech.ca/CMI or call 306-659-6968.

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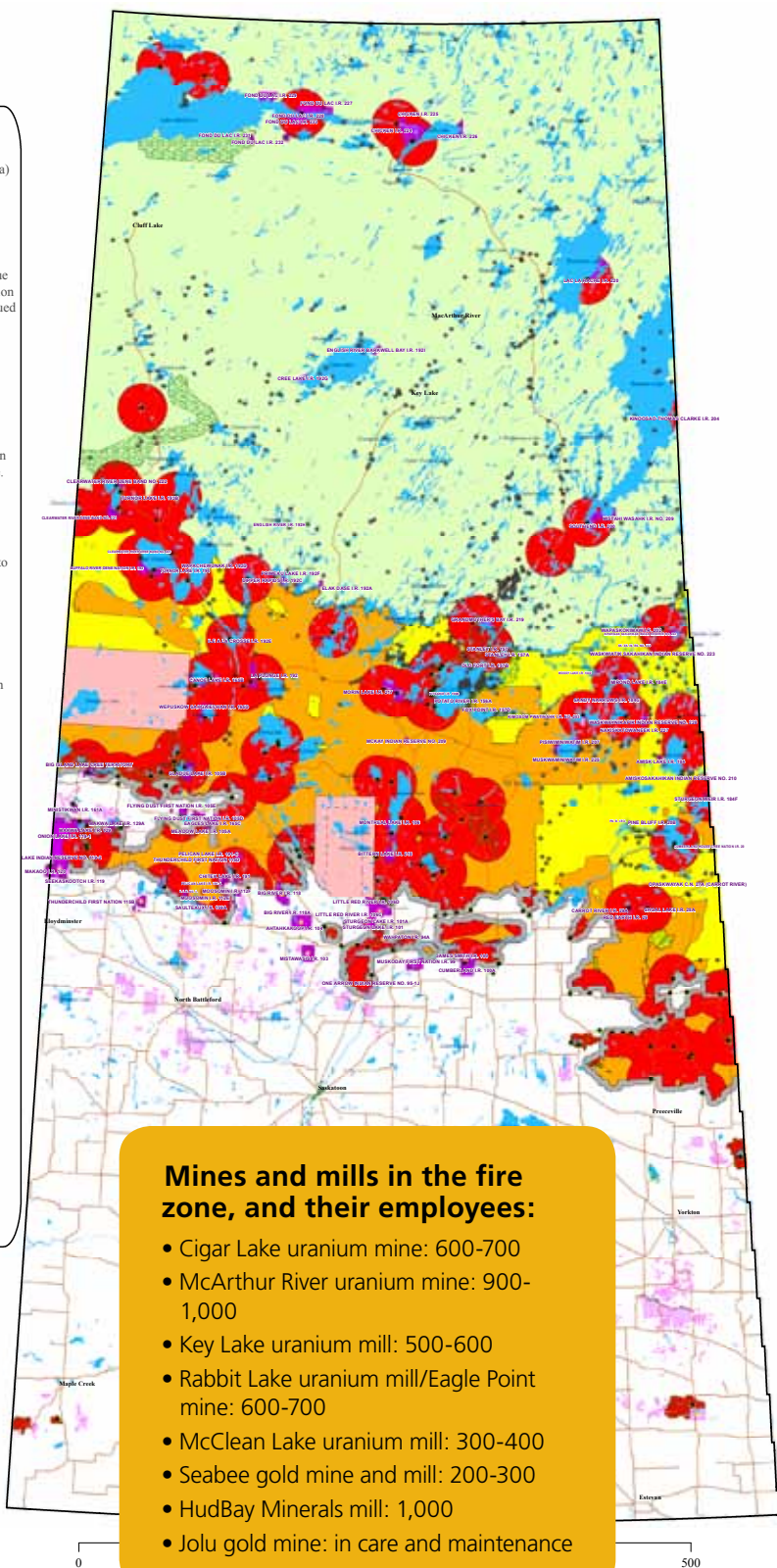
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WILDFIRE MANAGEMENT STRATEGY ZONES IN SASKATCHEWAN

Legend

- Full Response Zone- Community Value (7.6 million ha)**
-Initial Attack and Sustained Action within 20 km of communities with intent to extinguish all fires that pose a threat.
- Full Response Zone- Timber Value (4.08 million ha)**
-Initial Attack and Sustained Action in high timber value areas to control and suppress fires. Ongoing consideration of values and costs will be undertaken to ensure continued fire action is warranted.
- 4.5 km Burning Permit Area (1.1 million ha)**
-Initial Attack and Sustained Action to control and suppress fires.
- PANP/CLAWR (1 million ha)**
- PANP -10 km border agreement zone with a protection response the same as surrounding provincial land base.
- CLAWR -Treat protection response the same as surrounding provincial land base (values at risk).
- Modified Response Zone (2.69 million ha)**
-Consideration for Initial Attack and Sustained Action to contain fires to the zone based on assessment of values and financial cost. If unsuccessful pull back resources and protect Full Response Zone.
- Observation Zone (20.6 million ha)**
-Assess values at risk with intent to allow for fire in ecological processes. Consider intervention based on values vs. the cost of suppression.
- Rural/ Urban landbase (27.9 million ha)**
-Fire suppression on vacant Crown land primarily by agreement with municipalities.
- Aboriginal Lands**
- Northern AANDC - Protected Communities**
- 20 km Full Response Zone - Community Value -beyond 20 km - response is same as adjacent provincial land
- Northern AANDC - No Community**
- response is the same as adjacent land
- Provincial Parks**
- Representative Areas**
- Waterbodies**
- Interface Communities**
- Southern AANDC- Protected Community**
- Full Response Zone - Community Value to reserve boundary
- Structural value**
- Prince Albert National Park Border Agreement (10km)**
- Highways**

* Hectarage includes waterbodies



Mines and mills in the fire zone, and their employees:

- Cigar Lake uranium mine: 600-700
- McArthur River uranium mine: 900-1,000
- Key Lake uranium mill: 500-600
- Rabbit Lake uranium mill/Eagle Point mine: 600-700
- McClean Lake uranium mill: 300-400
- Seabee gold mine and mill: 200-300
- HudBay Minerals mill: 1,000
- Jolu gold mine: in care and maintenance

Date: 5/16/2014
 Document Name: priority2014
 Author: Wildfire Management Branch
 Coordinate System: NAD 1983 CSRS UTM Zone 13N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 False Easting: 500,000,000
 False Northing: 0.0000
 Central Meridian: -105.0000
 Scale Factor: 0.9996
 Latitude Of Origin: 0.0000
 Units: Meter

In 2014 the northern mining industry:

- Directly employed 1,713 residents of Saskatchewan's north at northern mine sites. They form half of the total 3,464 mining workforce (Dec 2014). Forty-three per cent of all mine workers are of First Nations and Métis heritage.
- Purchased \$420 million in goods and services from northern companies and joint ventures
- Paid \$98.7 million in wages to northern employees of mining companies
- Remitted income tax remitted on behalf of mining industry direct employees of \$95.9 million.
- Contributed taxes and royalties of \$83.2 million to the province of Saskatchewan

Fighting fire on all fronts

Mining companies, suppliers and staff pitch in to help communities

In the intense fire season of 2015, many northern communities in Saskatchewan were threatened by smoke and flames, even as highway closures cut off lines of supply.

Thousands of people were evacuated. Many properties burned, while others required above-and-beyond efforts to save them.

Saskatchewan mining companies operating in the north and south threw themselves into helping people and communities.

AREVA Resources employees helped in a variety of capacities, from volunteering on the front lines of emergency response to spending time assisting at shelters and making donations, both monetary and non-monetary.

AREVA employees from La Ronge and surrounding communities were directly involved in the firefighting efforts. This included everything from handing out necessary supplies, for example, baby formula and toothbrushes to coordinating recreational events, said Bruce Walls, AREVA Vice-President, Human Resources and Industrial Relations.

Corporate and employee donations, in the form of money and supplies, were collected and distributed at shelters in Saskatoon and Prince Albert, where many of the evacuees were located.

Throughout the ordeal, AREVA continued to pay the employees who were providing support.

It was a similar effort at Cameco. Jean Alonso, director of transportation and materials management, said workers from Key Lake went into Pinehouse to help fight the fire, along with a bulldozer from the mill site. Cameco supported the effort with a back-up power generator also supplied by Key Lake.



Mine employees pitched in to fight fires across the north including at this site near Montreal Lake.

"In addition, we had a call for help from Patuanak for some fire fighting supplies, through our corporate crisis management system. Cigar Lake had some

munities where we could."

Another serious problem was a lack of food in the north, due to cut-off supply lines and power outages. Recognizing that need,

By the end of August, \$277,872 was raised for emergency food hampers. Northern Resource Trucking (NRT) shipped the food north at no charge. Eleven semi-trailer loads were delivered to more than two dozen communities, from La Loche to Southend.

Athabasca Catering, Pratts Wholesale, and the food banks all pitched in to help gather and handle the food donations.

"The fire evacuations created a unique local food security challenge," Jochen Tilk, PotashCorp president and CEO, said at the time.

"Thousands of northerners had no time to plan ahead before they left their homes. Power outages in some areas meant refrigerators were off and food was spoiled. We were happy to be part of a team that helped people get re-established at home."

"We have people who live in Pinehouse, and when they're not at work, they're part of the community."

JEAN ALONSO, CAMECO

fire-fighting sprinkler supplies they could spare, and on short notice we organized a charter flight from there to Patuanak to deliver those items," he added.

"We looked after our people, we got our supplies rolling to the sites, and supported the com-

PotashCorp joined Kitsaki Group of Companies and Saskatchewan Blue Cross in donating \$50,000 each to the Food Banks of Saskatchewan. The companies encouraged other people to support the relief effort, and matched cash donations.

Growing the commitment

Mining companies encourage suppliers to partner with Aboriginal business

The mining companies of Saskatchewan long ago made a commitment to include the province's Aboriginal People in employment and supplying services and products.

Over the past 40 years, min-

ing companies in northern Saskatchewan have become world leaders in employment and training of Aboriginal Peoples and of fostering the growth of aboriginal-owned businesses.

More recently, mining compan-

ies in southern Saskatchewan have turned their attention and considerable economic clout to promoting Aboriginal inclusion within their companies. Now, they are asking their non-

Aboriginal suppliers to partner

with Aboriginal groups and businesses.

The supply chains of the mining companies within the province are at different stages with respect to aboriginal inclusion.

In northern Saskatchewan, the

supply chain is already dominated by northern and Aboriginal owned businesses. At the existing, brownfield mines in southern Saskatchewan, the business relationship with the existing suppliers is well established, so the mining companies have been creative in how they encourage Aboriginal inclusion in the supply chain.

At new, greenfield mines, the supply chain is not yet established, and offers different opportunities for Aboriginal companies looking to become established in the supply chain. To help existing and Aboriginal owned companies understand the different states of evolu-

tion of the supply chains of the various mining companies in the province, the Saskatchewan Mining Association, with partners SIMSA and Ministry of Economy, held an Aboriginal Supply Chain Forum at Wanuskewin Heritage Park in Saskatoon last year.

"Encouraging aboriginal participation in mining is one of the SMA's strategic goals, and the forum is a vehicle to make that happen," explained Pam Schwann, President, SMA.

John Lagimodiere, publisher and editor of Eagle Feather News, served as facilitator, and said the event was a resounding success. All the large mining

companies were in attendance, along with a large audience of invited businesses ready or interested in partnering with Aboriginal groups and businesses.

In addition to panel discussions, there were presentations from Keith Martell, executive chairman of the First Nations Bank; Jerry Grandey, former Cameco president and CEO, and now member of the PotashCorp board; and Gary Merasty, president and COO of Des Nedhe Development.

"They were all talking about their Aboriginal strategy, and saying, 'you have to have an Aboriginal strategy for investment, and partnerships. We're

really encouraging that,'" said Lagimodiere. "I think it was well-heard. People were getting the message."

Aboriginal businesses and economic development corporations are willing to partner with industry, said Lagimodiere, and they have capital and Aboriginal communities behind them, but they don't have the procurement knowledge.

"By partnering with the established suppliers, they all bring their strengths together and make these good partnerships that lead to collaboration agreements with communities and joint ventures.

"I think it's smart. If the big

Encouraging Aboriginal participation in mining is one of the SMA's strategic goals.

PAM SCHWANN, PRESIDENT, SMA



We're building a Legacy.

K+S Potash Canada has seen tremendous growth since work on the Legacy Project began near Bethune, SK. There has been incredible progress both on-site and off-site, and we are excited to carry this momentum forward. We are looking forward to a long future operating and investing in the province of Saskatchewan.



K+S Potash Canada

industry players are doing it, why wouldn't their suppliers?" asked Lagimodiere. "They're investing time and energy in engaging this under-engaged community. They are saying, this goes beyond just our business. This is important to business in Saskatchewan going forward."

In northern Saskatchewan, the value of goods and services purchased in 2014 by Cameco and AREVA was \$1.12 billion. Approximately 39 per cent (\$439 million) went to businesses based in northern Saskatchewan. Further south, PotashCorp is also emphasizing the need for collaboration.

Leanne Bellegarde, Director, Diversity and Inclusion for PotashCorp, said the company is making a commitment to Aboriginal inclusion that goes beyond its own direct employment and community investment.

"In every RFP (request for proposal) that goes out for goods and services, we are asking all our suppliers what their commitment is to local Aboriginal content. It will become a contractual commitment to those awarded."

"We ask them to identify what opportunities they have for employment, their community investment strategies, for use

of subcontractors, particularly Aboriginal-owned subcontractors, and for what they do around Aboriginal education and training support, as well."

PotashCorp spends about \$220 million on goods and services in this province, which can clearly have a significant economic impact on the supply chain, she said.


"We've made an early commitment to achieve 30 per cent of our local purchasing attributed to local Aboriginal content by 2020," said Bellegarde.

Bellegarde saw the forum as a great opportunity to connect Aboriginal and

non-Aboriginal business.

"Part of what we tried to achieve there was participation from Aboriginal and non-Aboriginal suppliers, and that was an important mix, so they get to know each other."

Lagimodiere noted that connecting through the supply chain is a good way for the mining industry to positively engage aboriginal communities.

"They get wealth, they get jobs, they get capacity and profits can go back into building more business, or a school, or investing in a rink, or sending their kids to university. It's a win-win." 



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In each edition of ORE, we go beyond the official bio to give our readers insight into the leaders of Saskatchewan's mining and exploration companies.

Beyond the Bio:

On the road and in the air with **Dr. Ulrich Lamp**, President and CEO, K+S Potash Canada

Only a few weeks after moving to Saskatchewan, Ulrich Lamp and his wife Margot travelled to their homeland of Germany for a working visit. On the flight back, the two were amazed to find themselves remarking that they were "going home" to Saskatoon.

"That was our feeling. That really surprised us, but it was the reality," said Lamp in a recent interview.

Lamp, Margot and their son Paul moved to Saskatoon in August, 2012, after K+S asked him to take the lead on the Legacy Project — the first greenfield potash mine in almost 40 years. Despite English language barriers at the beginning, and a very cold first winter, Lamp says the experience has been wonderful. "It has been a gift to come to Canada to build a new mine and live in a wonderful new country," he said.

"We never got the feeling we are foreigners. What we experienced from the beginning was the people were friendly and also very helpful."

Moving in and up at K+S

Ask Lamp if it was always his intention to join the potash industry, and he laughs. "It was an

accident," he admits, although clearly a happy one.

At university, Lamp took a degree in electrical engineering and then added a doctorate in mathematics. As he neared the end of the doctorate, K+S sent a letter inviting him for a talk about a possible career. The K+S executive was a contact of one of Lamp's professors.

"I had no clue about potash at the time," said Lamp. "I grew up in the western part of Germany, next to Koblenz, and the potash industry was in the eastern part of West Germany, close to the border of East Germany.

"My aim was not to stay there. I thought it was a nice environment; the people were nice," and that's very important to Lamp. He notes that a happy career is as much about working conditions as about the work, and it's also important to him to listen to employees and colleagues to gather their ideas. The environment seemed to mesh with his own values, and he joined the company.

"After three and a half years, they offered me a job at headquarters. I was responsible for the IT department, which was very small at the time. I built it up to 200 IT specialists," said



Ulrich Lamp, President and CEO, K+S Potash Canada

Lamp, who became CEO of IT services in 2000.

"And then I learned about Legacy. I was asked at the beginning of 2011 to join this project."

He liked the project from the beginning, finding it "fascinating from the first minute of contact," and by early 2012, K+S asked him if he was interested in moving to Saskatoon and taking the lead on Legacy.

After discussing this big move with Margot and Paul, he took the position. It was not an easy decision: Margot would have to give up her work, and Paul would have to navigate a very different education system, as well as learn English.

With "great support" from Margot, the Lamps moved in

the summer of 2012. Paul had to go backward in his education to Grade 11; he was 18, but his classmates were a year or two younger. At first, he understood nothing, said Lamp; but today Paul is "brilliant in English," and in his second year studying computer science at the University of Saskatchewan. "That's hard enough to do in your mother tongue. In a second language, that's really challenging."

It wasn't just the family that made the big move. To ease the transition to Canada, at least on the cookery side, Ulrich and Margot purchased and transported a German bread oven. Margot had to learn how to use the fairly massive oven, measuring about 1.2 metres wide, and fitted with

special water misters that help form the traditional German crust. Luckily, the large container used to transport their belongings had plenty of space for the oven.

The bread contains sourdough, and is a mixture of 30 per cent wheat and 70 per cent rye flour.

"We enjoy it. It's a piece of home," said Lamp.

Always on the go

Travel is a constant in Lamp's life. He flies to Germany at least once a month for a few days, and sometimes twice a month. He also goes to Vancouver regularly, where K+S is building a storage facility and vessel loading area at Port Moody.

The storage facility "is a huge building, roughly three, four hundred metres long and 32 to 35 metres high," said Lamp, adding that it has a 160,000 tonne capacity.

One or two days each week are spent at the Legacy Project, about two and a half hours south of Saskatoon near Bethune. The solution mine is expected to go

into production in late 2016.

As well as work travel, the Lamps have also engaged in tourism travel across quite a bit of Canada, and particularly Western Canada.

"We get, more in the summertime, visitors from Germany — friends, family," said Lamp. "We take them on (what we call) the 'German loop;' it's really easy to get at via Edmonton, stay in the (Jasper) national park, and go to Lake Louise, Banff and Calgary."

Travelling in Canada is very different from travelling in Germany, he added.

"The wide open land...the huge blue sky. Germany is very narrow; you have a lot of hilly regions...and every few kilometres there's another village.

"In Germany, you have a lot of cars, and high speed. When you arrive at your town, you are really tired. It's like yoga, this kind of driving in Canada. You can look around, and talk. And you are not so tired when you arrive.

"And when you're in this kind of nature, it's beautiful." 🌲



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Tagging along

MARC LEPAGE,
MANAGER, INVESTOR
RELATIONS
CLAUDE RESOURCES INC.



If you plan to tag along with Marc Lepage, pack a suitcase.

In his position as Manager, Investor Relations with Claude Resources, Saskatchewan's only gold producer, Lepage is constantly travelling to some of the world's major cities: Toronto, New York, London, Paris, Zurich — the list goes on.

"Being a Saskatoon publicly-traded company on the Toronto Stock Exchange, most of our investors don't reside in Saskatchewan," explained Lepage in an interview.

Therefore, it's important to regularly head out to meet investors on what the industry calls "road shows." Lepage, along with Claude Resources executives, could be on the road as many as 100 days a year, often in three to four day stints.

"In 2015, we were typically gone eight days of the month," said Lepage.

"It is my job to communicate to the people we meet with around the world so they can make informed decisions on

whether to buy, hold or sell the stock."

He loves it, along with the many other responsibilities he juggles in his multi-faceted job; but travel has also taught him two other important things.

"I've been all over the world, and I love coming home," he said. "We have the best standard of living in the world."

"The IR role provides a way of seeing the world but being able to live in Saskatchewan. What an opportunity."

Lepage, born and raised in Saskatoon, is bilingual and holder of a Bachelor of Commerce degree from the Edwards School of Business at the University of Saskatchewan.

While he had the opportunity to go to Calgary and enter the oil and gas industry, Lepage wanted to stay in this province, and he wanted to work in mining.

"We're a mining town," said Lepage, a true Saskatchewan patriot.

"Everyone thinks of Saskatchewan as the place you fly over or drive through. But we're rich in resources, and most of it has to be extracted by mining."

"I knew people in the industry, and I knew that was where I wanted to be."

One of those people was Neil McMillan, the former president and CEO of Claude. Lepage, who also knew McMillan's son, often invited him out for coffee and advice on how to get into the mining sector.

"A year after I graduated from university, he was looking for someone on the marketing and communications side, who was eager to get into the mining business," said Lepage. "We shared a big passion for baseball; he also had a career in ball."

Before entering the mining industry, Lepage was a talented

baseball player, who spent a season in Australia at age 19 and another two seasons with the Saskatoon Yellow Jackets. He was teammates and is friends with the Saskatchewan-born pitching sensation Andrew Albers, and with Dustin Molleken, who recently signed with the Detroit Tigers.

That baseball background helped cement the relationship with McMillan. "This business is about connections, relationships and wanting to work with the right people," said Lepage.

He has been with Claude for seven years, and is now working with new president and CEO Brian Skanderbeg. Much of his job is dealing with investors and

the other people connected to capital markets, such as company analysts.

"As an IR officer, you need to be aware of not only what's happening with your company, but the macro-economic environment as well," said Lepage. "Information is your biggest tool, and not just knowing your company, but the factors that influence your company."

IR, he explains, is about integrating the disciplines of finance, communications and marketing. The intention is to provide a flow of information between the public company and the investment community, thereby enabling fair and

efficient capital markets.

IR people must also build excellent relationships with their senior executives. Lepage pre-

pare information for the executives, creates various communications strategies, spends hours on the phone talking to investors himself, contributes to the annual report, manages the website, writes press releases and fact sheets — and obviously knows how to juggle very, very well.

I knew people in the industry, and I knew that was where I wanted to be.

MARC LEPAGE

paring information for the executives, creates various communications strategies, spends hours on the phone talking to investors himself, contributes to the annual

report, manages the website, writes press releases and fact sheets — and obviously knows how to juggle very, very well.

Being an IR professional is fascinating, said Lepage, because you are involved in the entire business.

stand all aspects of the business and deal with all departments in order to get the information to develop the communication strategies. You often get a seat at the management table and sometimes even at the board table. Senior management and the board rely on IR to provide them with intelligence on the market, regulatory issues and shareholders. This is important for a publicly traded company.

"I get in at 7.30, and next time I look at the clock, it's noon," said Lepage. "This role is multi-faceted and there is never a day that is the same. You have to really be able to prioritize your time, and be very efficient." 🏠

Marc Lepage's three things never to travel without:

- ✓ A good book
- ✓ Oil of oregano to avoid getting sick
- ✓ Noise-cancelling headphones.



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eARTh

SMA's new logo tells the story of mining and exploration

Every good logo tells a story. Far from a matter of throwing some words and shapes together, a good logo is developed through collaboration, consideration and many, many iterations. The final result is a tiny book in itself.

So it was that the new Saskatchewan Mining Association's logo came into being. When the SMA celebrated its 50th year in 2015, its board felt it was time to refresh the logo for the future.

They chose Creative Fire of Saskatoon to develop the important piece of branding.

"We were fortunate to have them choose us," said Ken Juba, a founding partner of the firm. "Then we started the process of discovery and development."

The process itself was quite fascinating, starting with many conversations with Tracey Irwin, SMA Manager of Communications, and a great deal of research.

"There was a conversation with the folks at the SMA, to understand where the logo is used, how it's used, what its strengths and weaknesses are, what they like and what they don't like about it, why they feel the need for change, and what they would like the new logo to represent," said Juba.

Those conversations continued throughout the design process, he added.

"One of the things we found about the process with the SMA is that they were very collaborative. The SMA Public Awareness Committee that oversaw the development of the logo is comprised of communication specialists from member companies. The people we worked

with have a lot of experience in the industry, and brought some useful ideas to the table."

As part of the research behind the design, Creative Fire also conducted an audit of industry partners, including other mining associations and companies in Canada. That audit helped designer Dean Bartsch create a logo that would stand out in the universe of mining associations.

"A key consideration in the rebranding of the SMA was that the logo needed to reflect the diversity of our members, whether they were from the exploration, potash, metallic, industrial or uranium sectors, as well as the connection to the province" said Pam Schwann, President, SMA. "Finding something that would 'speak to' all our members was a fun challenge," she added.

"When people think of the mining association, they have a fairly narrow view of who's involved in the SMA," Juba said. "As we went through the discussions with the people there, we learned that it's not just the biggest mining companies in the province, and it's not just actual mining and geologists."

Bartsch took the information and developed it into a "simplified story," with a clean, contemporary look.

"In this case, we ended up in a place where we could talk about mining right from exploration to extraction. That's the umbrella of what we're working with," he said.

"Then we started looking at symbols and marks to simply communicate that," he added. "Knowing they may use that



Designer Dean Bartsch, Creative Fire

logo for 10 or 20 years, we needed to make sure it would remain timeless."

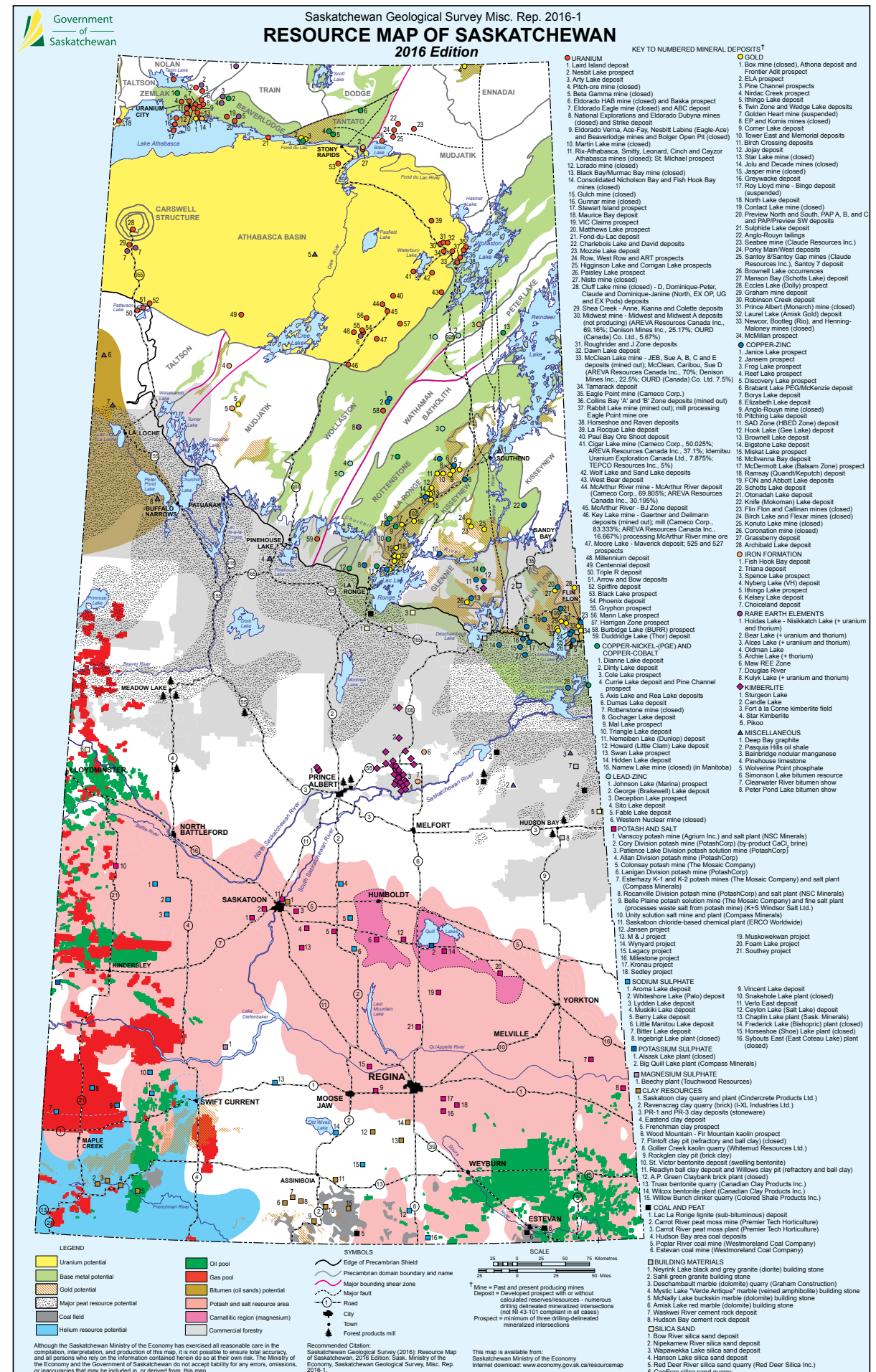
The final logo is a clear representation of mining tucked within the shape of the province. A bright green graphic symbol, which represents a headframe, drill rig, or loadout building, and a push pin for a target on a geologist's map, drills down into a dark grey stylized letter M, for mining.

"Within the logo, it's the path to the valuable resources that are being recovered from the earth," Bartsch explained.

As to the use of colour, "green is fresh and a reminder of the importance of environmental sustainability in exploration and mining," added Schwann.

"People can look at it and immediately recognize it's Saskatchewan, and recognize the mining component, as well," Bartsch said.

A good logo, said Bartsch, should be simple, appropriate, memorable, timeless and versatile; and, it should tell a story. It's fair to say the new SMA logo lives up to all those conditions.



SMA MEMBERSHIP

- Abasca Resources Inc.
- Agrium Partnership
- ALX Uranium Corporation
- AREVA Resources Canada Inc.
- AREVA Resources Canada Inc. – McClean Lake Operation
- BHP Billiton
- Boart Longyear
- Cameco Corporation
- Cameco Corporation – Cigar Lake Operation
- Cameco Corporation – Key Lake Operation
- Cameco Corporation – McArthur River Operation
- Cameco Corporation – Rabbit Lake Operation
- CanAlaska Uranium Ltd.
- Claude Resources Inc.
- Denison Mines Corp.
- Fission 3.0 Corp.
- Fission Uranium Corp.
- Fortis Mining Engineering Manufacturing
- Forum Uranium Corporation
- HudBay Minerals
- JCU (Canada) Exploration Company Ltd.
- K+S Potash Canada GP
- K+S Windsor Salt
- Kitsaki Procon JV
- Mosaic Company
- Mosaic Belle Plaine
- Mosaic Colonsay
- Mosaic Esterhazy
- NexGen Energy Ltd.
- North Arrow Minerals Inc.
- North Atlantic Potash Inc.
- PotashCorp
- PotashCorp Allan
- PotashCorp Cory
- PotashCorp Lanigan
- PotashCorp Patience Lake
- PotashCorp Rocanville
- Purepoint Uranium Group Inc.
- Rio Tinto
- Shore Gold Inc.
- Skyharbour Resources Ltd.
- Thyssen Mining Construction of Canada
- UEX Corporation
- Vale Potash Canada Limited
- Western Potash Corp.
- Westmoreland Coal Company – Estevan Mine
- Westmoreland Coal Company – Poplar River Mine
- Xtreme Mining & Demolition Inc.
- Yancoal Canada Resources Co., Ltd.

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