

# connect



Volume 24, 2018

## MILESTONES

### Passing the Prospector's Pick

A Letter from Dr. Norman B. Keevil

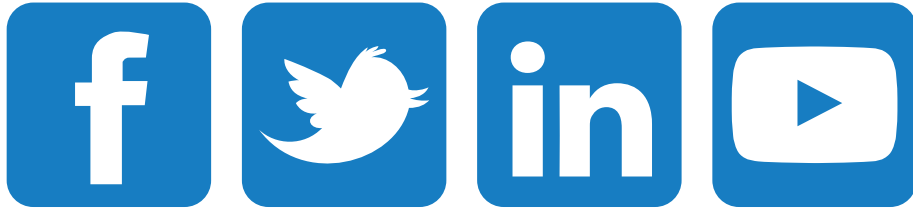
### The Future of Driving

Autonomous Driving Technology,  
Electric Vehicles and Beyond

### The Story of Coal Mountain

Marking Over 100 Years of Memories

Teck



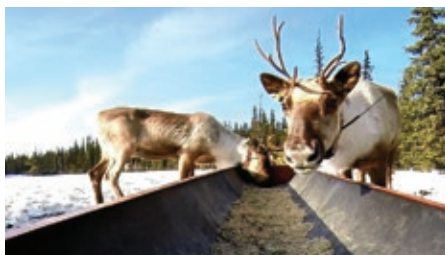
# SEEN ON SOCIAL



We're sharing Teck's stories on social media. Visit us online to find these and more.

-  /TeckResourcesLtd
-  /TeckResources
-  @TeckResources
-  Teck Resources Limited

Teck is putting innovation and technology to work to strengthen safety, enhance environmental performance, improve productivity and help grow our business. Watch 'Ideas at Work' to learn more.



We're proud to support the work of West Moberly and Saulteau First Nations, which has helped grow the Klinse-Za/Scott caribou herd from 36 to 80 since 2013. #NACW2018



This November 11th marked the 100th anniversary of Canada's 100 days and the Armistice. Teck honours Veterans for their service and sacrifices. #CanadaRemembers



Thank you to BC Children's Hospital Foundation for a touching reminder of the impact you can have when we all work together toward a common goal. #TeckAcuteCareCentre

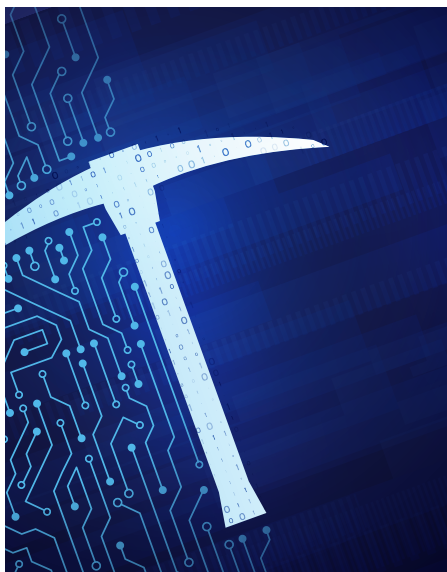
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## Thank You

Many thanks to those who contributed to and participated in this issue of *Connect*:

Catherine Adair, Community Relations Leader, Trail Operations; Honza Catchpole, Senior Project Geologist, North America Exploration; Darcy Chattell, Manager, Human Resources, Transformation & Change, Calgary office; Patricia Groulx, Environmental Engineer, Trail Operations; Andrea Lobos, Senior Communications Specialist, Santiago office; Kayleigh Montgomery, Communications Coordinator, Sparwood office; Nicole Muñoz, Prevention Specialist, Quebrada Blanca Operations; Chad Novotny, Lead, Water Resources, Vancouver office; Verna Westlake, Community Relations Coordinator, Red Dog Operations



## On the Cover

An illustrated prospector's pick and a symbol of Dr. Norman B. Keevil's retirement as Chair of Teck's Board of Directors. Read more in "Passing the Prospector's Pick".



# Welcome

**W**elcome to the final edition of *Connect* magazine for 2018—a year that’s been marked by reaching important milestones on key growth projects, while maintaining a focus on achieving efficiencies across our operations, which together, have helped us end the year in a strong financial position.

However, before we touch on some of those milestones, I wanted to reflect on the tragic incident that took place at our Elkview operation on November 18. We are deeply saddened by the loss of one of our fellow employees, and our thoughts remain with his loved ones and co-workers at this very difficult time. We are fully investigating the incident and as we share the findings in the coming months, it will be critically important that we learn everything we can to prevent something like this from ever happening again, because there is absolutely nothing more important than the health and safety of our people.

Now, turning to this issue of *Connect* magazine, I’d like to highlight some notable moments from 2018.

A very significant milestone occurred in October, as Dr. Norman B. Keevil retired from his role as Chairman of the Board of Teck, when he “passed the prospector’s pick” to incoming Chairman Dominic Barton. Dr. Keevil has worn many hats over an extraordinary career, including scientist, explorer, innovator, entrepreneur, industry leader, community builder, philanthropist and author. To paraphrase one of his favourite sayings in his career with Teck: Dr. Keevil never once rested on his ores.

In this issue of *Connect*, Dr. Keevil penned a tribute to the company and its employees which we’re very pleased to share on his behalf, in “Passing the Prospector’s Pick”.

In 2018 we also reached a notable milestone in our Innovation and Technology program, launching the Ideas at Work™ campaign, an exciting initiative that’s about generating new ideas at all levels of our company. For me, a pivotal experience that fuelled my passion for innovation followed a visit to the Silicon Valley, where I was inspired by the ideas, innovations and possibilities for the future. In “The Future of Driving”, innovations such as those I heard about during that visit are explored, painting a picture of the possibilities for society at large, and for Teck.

This year we also saw significant advancement of our Quebrada Blanca Phase 2 (QB2) project in Chile, first when we received regulatory approval for the project, and most recently, with the announcement of a partnering decision with Sumitomo Metal Mining and Sumitomo Corporation who have agreed to acquire a 30% indirect interest in QB2. We also received approval from our Board of Directors to proceed with full construction of QB2, which together, are major steps forward in advancing that project. Once built, QB2 will transform our copper business, making Teck one of the world’s major producers of copper, at a time when the longer term outlook for copper is very positive.

These are just a few examples of some of the significant milestones we reached this year. In a year where the market has showed volatility, we have remained steadfast on reaching key goals and achieving efficiencies which positions us well as we look forward to 2019.

All of this is made possible by our people and the exceptional efforts put forward every day, to make us a more productive, sustainable and a safer Teck. As we enter the holiday season, I wish to thank you for your tremendous efforts throughout this year, and hope that you enjoy a safe and happy holiday season with your loved ones.

Don Lindsay  
President and CEO





# PASSING THE PICK

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In October, Dr. Norman B. Keevil retired from his role as Chairman of the Board of Teck when he “passed the prospector’s pick” to incoming Chairman Dominic Barton, after an extraordinary career spanning over 50 years serving Teck.

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# A Letter from Dr. Norman B. Keevil

It was with mixed emotions that I announced my retirement as chairman of Teck Resources as of October 1, 2018. It has been a privilege to serve Teck for over half a century as it grew from small beginnings into Canada's largest diversified mining company, with operations throughout the Americas. What a ride, and what fine people I had to work with in this company, as well as with our various exploration, operating and community partners.

But for each of us there comes a time to vacate the saddle, leaving it to the next rider on the journey. I was glad to have been able to write some of the stories that went into making this company great in my 2017 book, *Never Rest on Your Ores*. Perhaps they will help inspire those who follow, in Teck and other mining companies, as they build for the future.

I was especially pleased to pass on the chairmanship of Teck to Dominic Barton, one of our great Canadians and a true world leader. His career advising business, academia and governments extending from Canada to China, South Korea and elsewhere in Asia, as well as to the United Kingdom, and points between, culminated in an unprecedented three terms as Global Managing Director of McKinsey & Company, a position from which he retired in July 2018. Enthusiastic and calm at the same time, knowledgeable and focused, he, as Chair, will do Teck well as this storied company continues to move forward.

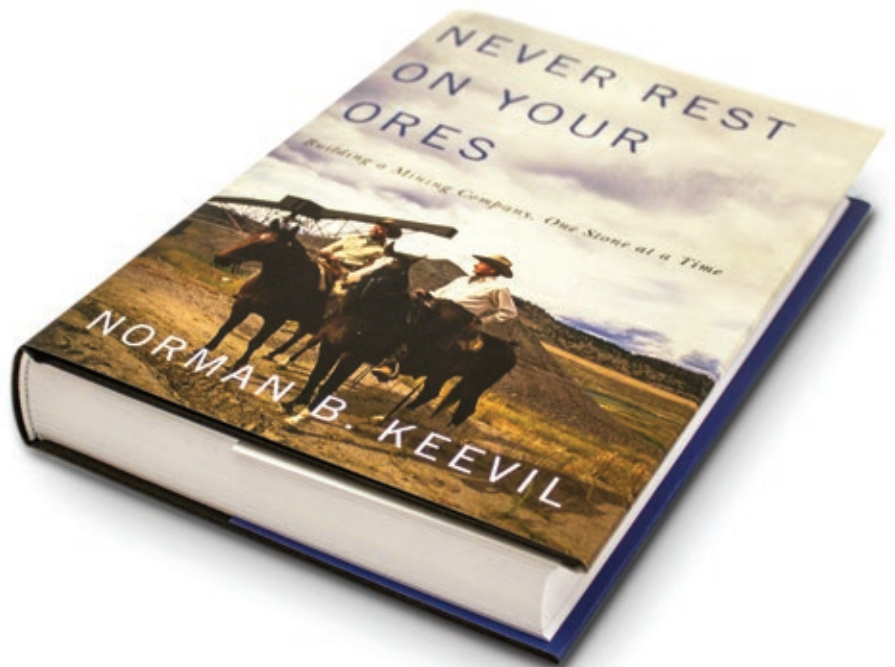
In *Never Rest on Your Ores*, I told how Teck-Hughes got started over 100 years ago with James Hughes' gold discovery at Kirkland Lake, about the same time as my father was born to

immigrant British parents deep in Saskatchewan. Part One of the book followed how those two separate events evolved over the next 50 years—Teck-Hughes as a gold miner, and my father as a university professor turned consulting geophysicist and eventually discoverer of a copper mine at Temagami.

These two paths then came together in the early 1960s with the combining of Temagami, Teck-Hughes and a new oil producing company, Canadian Devonian Petroleum (CDP), to create Teck Corporation, and a new era began. The stories from that point on could fill a book, and in fact, have.



Dr. Norman B. Keevil





Dr. Norman Keevil Sr. on the cover of The Northern Miner in 1953.

My father had been a leader in the new field of exploration geophysics and was the subject of the first cover photo for the venerable Northern Miner in 1953, years before the Temagami discovery. In fact, he and I as a young lad had canoed down the west side of Lake Temagami even three years before that, taking geochemical samples to follow up strange geophysical anomalies farther west. None of these anomalies actually led directly to the copper discovery six years later. But explorers are dreamers, and sometimes we dream in or around places where real mines are to be found.

The Temagami mine was small in size but contained the highest-grade copper ore ever found. Importantly, the first two deposits were right at the surface, so that Temagami could be developed inexpensively without having to lose control to one of the established major miners. It let us get started, and to stay independent for long enough to begin building something new and significant in Canadian mining.

The subtitle of the book is *Building a Mining Company, One Stone at a Time*. Deng Xiaoping, the Chinese leader of the 1980s, was determined to quadruple China's GDP in 20 years and, when asked how he would do it, he said: "We will cross the stream, one stone at a time". It is an apt plan, with successful building often being a matter of adaptability as opportunities or difficulties arise, and as the tides turn.

But it can take time for a new strategy to develop. Part Two of the book is titled *Intermezzo* for a reason, because it covered a slow, relatively unfocused period in the 1960s between the formation of Teck Corporation and the next phase when Teck began to take off.

This part began with another small discovery, of silver in the historic town of Cobalt. Well, this is pretty easy, we thought. So, as natural explorers and contractors, we spent the better part of a decade thinking that would continue to work for us. As well, the oil production CDP had contributed was steady and paid the rent. It was only after years of dry holes and small successes, along with work contracting ourselves out to financiers like ITT and Bessemer Securities, that we realized there might be a better way.

Sometimes the smartest people can struggle to figure out the right strategy when thrust into a new environment. We had been doing what we knew well, but after ten years shares of the new Teck Corporation were still selling right where they had been at the start, paying a modest dividend but having shown little growth. We were still pretty good at exploration and contracting, but not yet adept at building a lasting mining company.

Meanwhile, Placer Development was growing nicely as Canada's premier mine developer. I had been fortunate to work there ten years before, and to meet Bob Hallbauer when he was pit superintendent and I was exploration geologist. So, at the end of the 1960s when we had a need for a new head of mining operations, Bob agreed to join us. Almost the first thing he said though, was: "You guys have just three small mines with an average ore reserve life of two years. How do you expect to build a major mining company out of that?" He had a point, not lost on us as well, and it led to Teck Corporation making a conscious switch from explorer/contractor to mine developer.



Bob Hallbauer, a mining icon.

That seemed a good idea, we thought, but it was easier said than done. For one thing, we didn't have any potential new mines to develop. So, we had to go out and find them, not through the grass roots exploration we had enjoyed and were used to, but by negotiating the acquisition of what development properties we could find and afford, and that were for some reason or another were available, and doing it while we still had time.



We needed to beef up our engineering team in order to be credible developers, and Bob Hallbauer helped gather in a number of top people, some from Placer and some elsewhere, to augment our existing team. As well, we needed to beef up our financial capacity to be able to perform.

We would later describe the three keys to the success of any mining company as ore reserves, people and financial strength, but it was a challenge to assemble all of this from scratch. We had to do it one stone at a time, and Part Three of the book covers some of how that came about.

Over the next 15 years, we built seven new mines on a number of properties beginning with zinc in Newfoundland, niobium in Quebec, copper at Afton and Highmont in B.C., metallurgical coal at Bullmoose in B.C., and gold at Hemlo in Ontario. We also acquired an important interest in the Lornex mine in the Highland Valley. As with Placer Development before us, all of the new mines came on stream on time and within budget.

The other key element that helped our success in those days was the willingness to look at good ore deposits in any commodity, rather than restrict ourselves to one or two. Common sense says this means more good opportunities will be available for consideration than are available to any company fixated on a single commodity.

There were ups and downs. Nobody is immune to periodic recessions, and we encountered the occasional severe one, particularly during the Volker-Reagan years of the early 1980s. Fortunately, by then we had another brilliant new recruit in David Thompson, who joined us as CFO after a career in South Africa.

David helped recognize the potential severity of the impending recession, and saved our bacon by leading a major divestment and partnering program of non-core projects early on, well before the downturn hit. As a result, we had kept our powder dry and, while others were weak when times were at their worst, it let us acquire control of the Hemlo gold discovery that would lead to two of our most important mines of that era.

David was a real numbers man, and never did like exploration. He once asked, quite seriously: "Why don't you just explore the successful prospects and leave out all the others".

That didn't seem too practical, and we decided to teach him a lesson about chance by taking him fishing at Dent Island one year. To paraphrase an old, retired Teck director: "David may have been many things, but fisherman was not one of them". As it happened, David actually did catch the biggest fish, and he never let us forget it.



David Thompson and me, with David's fishing trophy.



The first Teck coal train, carrying Bullmoose coal from the mine to the new coal port at Ridley Island.





I took this picture at Quebrada Blanca in the early 1990s when it was just a prospect we hoped could make a mine. The most satisfying time for us prospectors is when that actually happens.

The book describes how we got into the coal business, in some ways almost by accident, as we discovered and developed the Bullmoose mine in northeastern B.C., acquired the Quintette and Balmer mines out of bankruptcy, and re-opened the latter as the Elkview mine.

Elkview was highly successful (and is to this day) and it became the core from which we were able to merge with the old Fording coal mines and consolidate the Canadian metallurgical coal business. The Elk Valley Coal Partnership became the second-largest shipper of seaborne metallurgical coal in the world.

We went on to acquire a major interest in Cominco Limited as it was consolidating Highland Valley Copper, and to work with it in developing the important Red Dog zinc mine in Alaska. We then helped Aur Resources develop the Louvicourt base metal discovery in Quebec and, with Cominco, Teck participated in developing the supergene orebody at Quebrada Blanca in Chile's high Andes Mountains.

I first visited Quebrada Blanca in the early 1990s, in those exciting days when it was just a prospect out of which we hoped to be able to make a

new mine. Now, some 25 years later, Teck and Sumitomo are beginning development of a new, deep US\$4.7 billion copper mine, QB2, beneath the original Quebrada Blanca supergene open pit.

As one of the crowning achievements of those 30 years of mine and company-building from 1975 onwards, in the late 1990s we joined with Noranda Mines, Rio Algom and Mitsubishi to develop the large Antamina mine in Peru. The ownership has changed with new partner BHP taking out Rio Algom and Glencore succeeding Noranda, but for Teck it continues to be one of our best mines, another in the long string of new mines that has helped to make this company what it is.

This is just a small taste of the stories told in the book's nearly 500 pages. There were ups and downs, successes and reverses, honour and perfidy, and appearances by industry giants like John Simpson and Bill James, as well as the many giants within Teck whose contributions should never be forgotten.

There is one thing about mining that all of us need to keep in mind. A mine or mining company without ore reserves is an oxymoron. All mines begin to deplete their reserves as soon as they start mining, and to be sustainable they have to find and develop more reserves just to keep going, let alone grow. The same applies to mining companies, which have three alternatives: wither and die as reserves run out, muddle along by replacing them, or grow by doing better than simply replacing them. It was always our choice to be part of the third group.

The world needs the products we produce: copper for electric cars, cell phones and countless other uses, coal

to make steel and zinc to galvanize it against rust. As Don Lindsay likes to say: "If you can't grow it, you have to mine it". Someone has to do it. We can't all be metal and coal traders if there is nobody mining the metal and coal in the first place.

So, every employee, contractor and shareholder in this and other mining companies owes a debt of gratitude to the men and women who discovered and built those mines, to those who are hard at work out there mining them today in the pits and underground, and to the explorers for tomorrow.

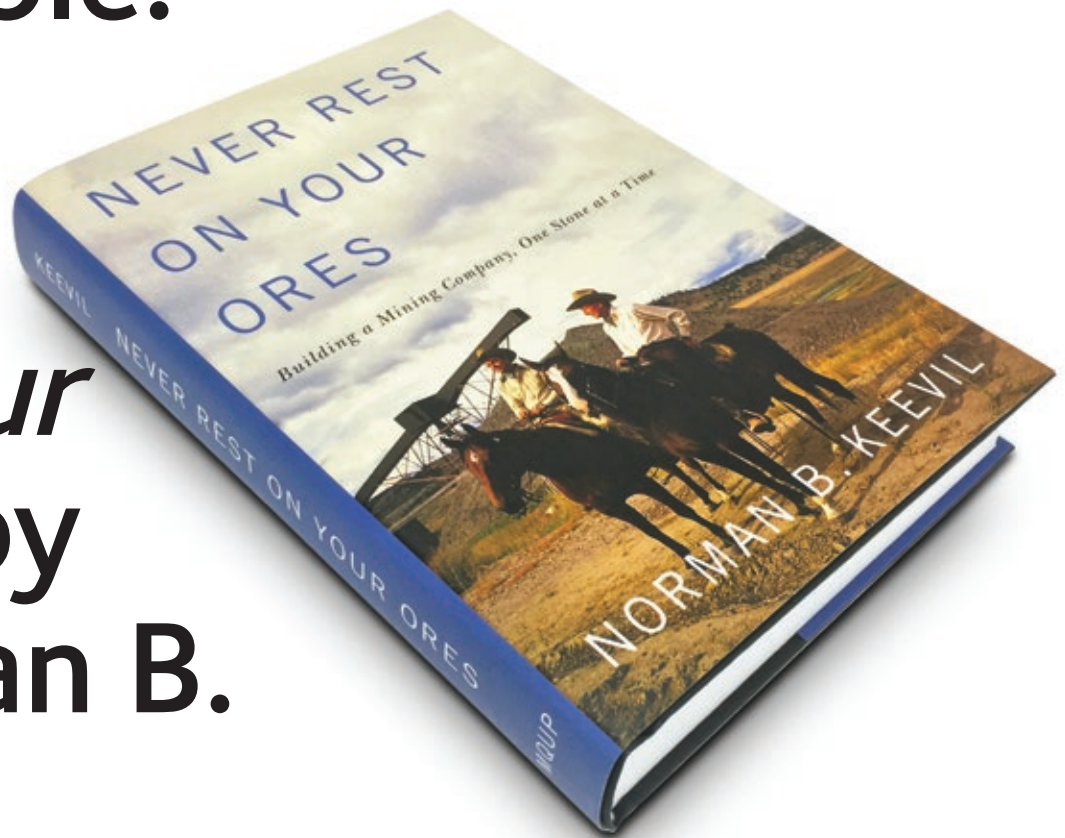
Thanks to you all for being part of the ride, and good luck as Teck continues to move forward. ■



Bob Hallbauer was one of the giants on whose shoulders all of us in Teck stand. Sadly, he passed away early, unable to attend his Mine Opening at Quebrada Blanca.

The Mining Association and The Mine Suppliers of B.C. have hosted an Annual Bob Hallbauer Memorial Golf Tournament in his memory, and at the 20th annual tournament in 2016 it was won, perhaps fittingly, by none other than the team of Teck's Scott Wilson, Don Lindsay and Joan and Norm Keevil.

# Now Available: *Never Rest on Your Ores* by Norman B. Keevil



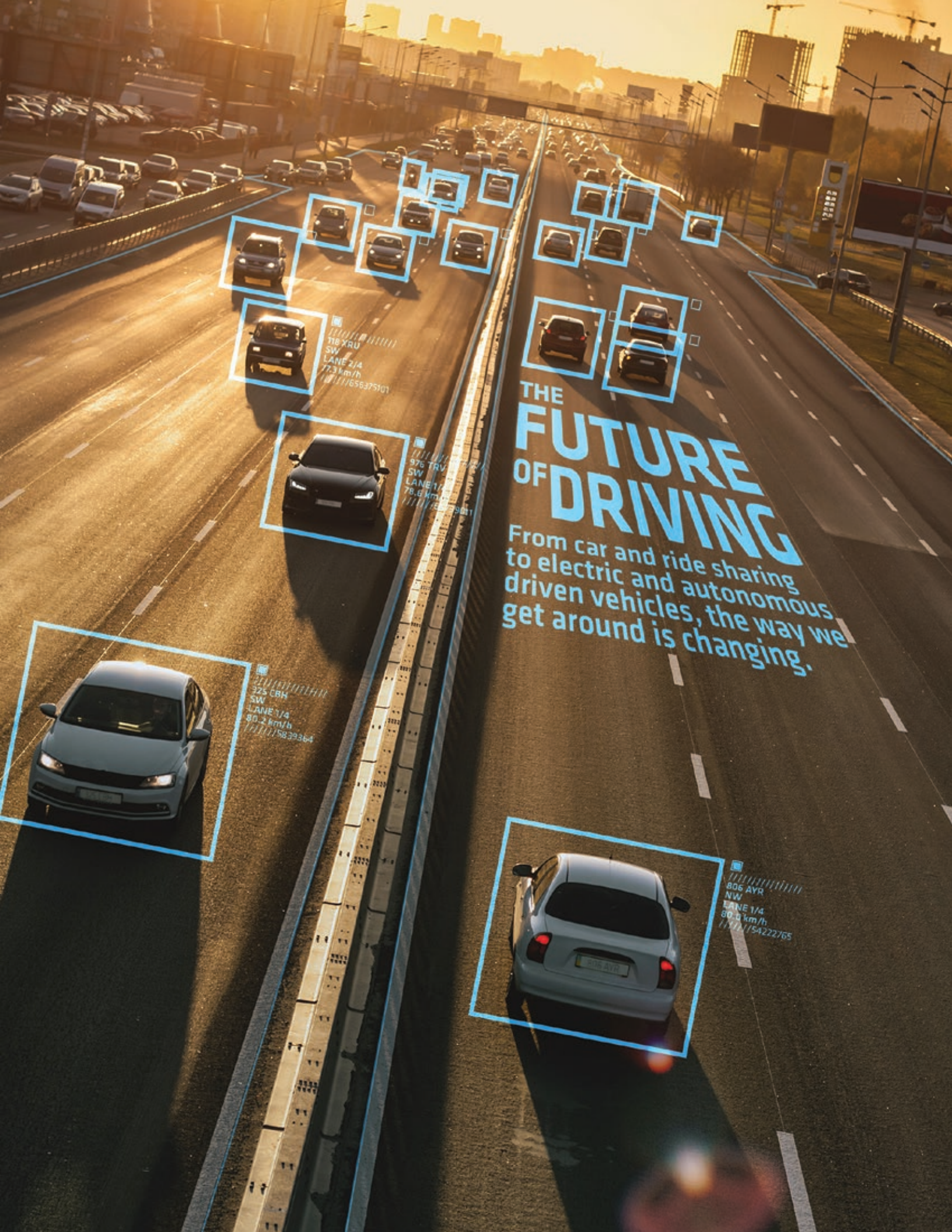
*Never Rest on Your Ores*, a new book by Teck chairman Norman B. Keevil, is a lively and detailed look at how Teck was built from the ground up.

Covering 100 years of Canadian mining and business history, the book discusses the discovery and building of mines, the mechanics of financing in a volatile and cyclical industry, and the role of mergers and acquisitions in building a Canadian mining company.

It provides a unique behind-the-scenes look at the business leaders, politicians and colourful characters who have played a key role in shaping Canada and the global mining industry.

Copies can be ordered through major bookstores or directly from the McGill-Queen's University Press website at [www.mqup.ca](http://www.mqup.ca) or from [www.amazon.ca](http://www.amazon.ca)





# THE FUTURE OF DRIVING

From car and ride sharing to electric and autonomous driven vehicles, the way we get around is changing.

118 YRU  
SW  
LANE 2/4  
77.3 km/h  
111111656375101

976 TRV  
SW  
LANE 1/4  
78.8 km/h  
1111113239011

325 CRH  
SW  
LANE 1/4  
80.2 km/h  
1111115839364

806 AYR  
NW  
LANE 1/4  
80.0 km/h  
11111154222765



Not since Henry Ford's mass-produced, affordable Model T pushed the horse and buggy to the side of the road have we seen such a major transition taking shape. And it isn't just the big automakers driving change. Companies such as Uber, Google, Tesla and Waymo are investing heavily in electric vehicles (EVs) and autonomous driving technology.

While fossil-fuelled vehicles still rule the road, and will for decades to come, rapid advances in driving technologies are setting the stage for major changes in how we experience driving, both at work and at home.

## Autonomous Driving Technology

Perhaps the most exciting advancements being made in vehicles are in autonomous (self-driving or driverless) technology.

Imagine your family car without a steering wheel or accelerator and brake pedals. The car would travel the route you identify without any physical input from you by using a complex variety of interconnected systems such as GPS, sensors, cameras, sonar and video to create a map of the surroundings and environment.

The data collected would be processed by a control system that manages functions like steering, speed, braking and avoiding obstacles. You could sleep, catch up on social media or just stare out the window while the car does all the work.

Automakers and tech companies are investing billions of dollars in developing the technology, often through partnerships. In 2016, Ford announced that it was teaming up with four Silicon Valley tech companies and intends to introduce a fleet of driverless cars in a

ride-sharing service by 2021. This past summer, Toyota said it was investing US\$500 million to help Uber further develop autonomous technology. Meanwhile, Uber's competitor Lyft is partnering with Nissan.

While the technology is still in its infancy, it has the potential to fundamentally change transportation systems.

## Growth of Electric Vehicles

According to the International Energy Agency (IEA), the number of electric and plug-in hybrid cars on the world's roads grew to more than three million in 2017, a 54% increase compared with 2016. China accounted for about half of that growth, with sales of 580,000 vehicles, followed by the United States with 280,000 vehicles.

The agency noted that charging infrastructure is keeping pace with growth, with the number of private chargers at homes and workplaces estimated at almost three million worldwide, in addition to about 430,000 publicly accessible chargers.

The growth is being driven not only by advances in technology, but also by the growing understanding that the transition to a low-carbon economy depends upon reducing our consumption of fossil fuels. Reducing the emissions from the transportation sector would have a significant impact.

Though sales of EVs are still only a fraction of overall vehicle sales, the IEA predicts that EV ownership could reach 125 million by 2030, driven by government policies, stricter emissions standards, and financial incentives and rebates. That could increase to 220 million EVs by 2030 if countries take more aggressive measures to tackle climate change and reduce emissions further than currently planned.

## Autonomous Haulage Pilot

The use of autonomous vehicles is also a topic of great interest at Teck. At Highland Valley Copper, a pilot is underway on the use of autonomous haul trucks, which have the potential to enhance safety, reduce the environmental footprint of mining, and generate more than \$20 million in annual savings at the mine.

The pilot involves six retrofitted and new Caterpillar trucks and is expected to run for about one year, providing more information about the use of the technology and creating the opportunity for further autonomous haul truck usage at Teck.



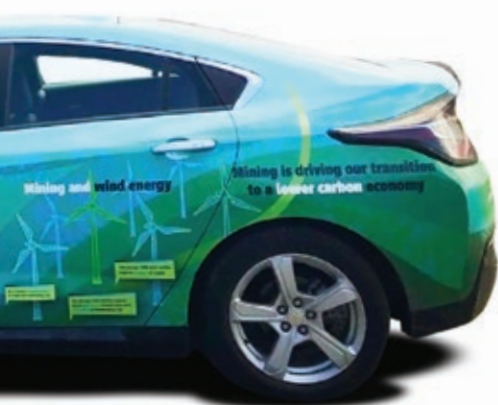
## Essential Elements

For Teck, the advancements being made in EVs and autonomous technology also offer opportunities for the products we produce.

For example, an average gasoline-powered car uses about 20 kg of copper, a hybrid uses about 40 kg and an EV has roughly 80 kg. A hybrid electric bus contains nearly 90 kg of copper, while a battery-only electric bus contains nearly 370 kg.

The EV revolution will also require steel makers to make lighter and stronger steels to compete with other materials needed to make these vehicles. Our Product Technology Centre (PTC) is playing a key role by working with steel mills to develop new zinc alloys and galvanizing processes that can galvanize this next generation of Advanced High Strength Steels (AHSS), helping ensure our steelmaking coal remains a core material in this next generation of vehicles.

And all EVs are mandated to use a 12-volt advanced lead battery for essential emergency and safety systems, including lighting, battery management system (BMS) for traction battery and ABS brakes. These batteries contain about 10 kg of lead, a metal produced at both our Red Dog and Pend Oreille operations, and refined at our Trail Operations.



Trail is also uniquely positioned to supply the growing demand for specialty metals, namely germanium and indium, which are needed for sensors in autonomous vehicles.

## Supporting a Local Initiative

Teck is contributing to the advancement of EVs through more than products. Last spring, Teck contributed \$30,000 in a regional and community-driven strategy to accelerate the adoption of electric vehicles by installing charging stations along an 1,800-kilometre stretch of Highway 3 in the Kootenays, a road frequently travelled by thousands of Teck employees in the region.

“Our involvement in the Accelerate Kootenays initiative aligns with our efforts to support the transition to a low-carbon economy, along with providing the metals and minerals required for clean technology,” says Larry Davey, Vice President, Planning and Development, Coal. “This charging station is a great example of Sparwood’s focus on sustainability.” ■



## Quick Fact

Steelmaking coal and copper are also critical components in electric vehicle charging station infrastructure. For example, looking ahead to 2027, 100,000 tonnes of copper could be needed annually to support the development of charging stations depending on the speed (fast charging = more copper) to the size of the charging station.

## #fuelledbymining

The Mining Association of B.C. has partnered with Clean Energy Vehicles for BC (CEVforBC) and Dueck GM to wrap an electric-powered Chevrolet Volt with facts outlining mining’s role in a lower-carbon economy.

The car has been touring the province, engaging with British Columbians at various events about how B.C.’s mining industry is driving a green energy future. Among the appearances the car has made are Mining Day at the Legislature, the Business Council of B.C.’s Energy Transitions Forum, the Vancouver International Auto Show, the Association of Vancouver Island and Coastal Communities convention, the B.C Tech Summit and a variety of events connected to B.C. Mining Month.

The MABC has been chronicling the tour on social media using the hashtag #fuelledbymining.

# A Major Milestone in Water Quality

A breakthrough in water treatment technology, Saturated Rock Fill has tremendous potential to improve water quality in the Elk Valley, removing selenium and nitrate at greater volumes and at a fraction of the cost of other methods.

In January of this year, the Saturated Rock Fill (SRF) full-scale trial at Elkview Operations was commissioned and is showing promising results, treating 10 million litres of mine-affected water per day, and achieving near-complete removal of selenium and nitrate.

SRFs are a new form of water treatment that use naturally occurring biological processes in water collected in former mining areas to treat and improve water quality. They have the potential to augment or even replace traditional water treatment technology, treating large volumes of mine water at significantly reduced capital and operating costs.

"The success we're seeing with Saturated Rock Fill is the result of our ongoing investment in leading-edge research and development to find new and better ways to protect water quality in the Elk Valley," said Robin Sheremeta,

Senior Vice President, Coal. "Teck is committed to meeting the objectives of the Elk Valley Water Quality Plan, and breakthroughs like SRF will help us do so as quickly and efficiently as possible."

"As next steps, we're continuing to prove out the results of the Elkview facility and exploring broader implementation of the technology," notes Robin. "This is a very exciting long-term development." ■

**Teck is committed to meeting the objectives of the Elk Valley Water Quality Plan, and breakthroughs like SRF will help us do so as quickly and efficiently as possible.**

## How it works

Mining steelmaking coal can require the removal and placement of large quantities of rock in piles. Water travels through these rock piles, picking up substances like selenium and nitrate along the way. Once that water leaves the rock piles, it gets carried into the watershed, where it can have adverse effects on water quality if constituents are in high enough concentrations.

The SRF facility uses naturally-occurring biological processes within the saturated zone of backfilled pits to treat the water by removing unwanted substances, namely selenium and nitrate. Mine-affected water is directed into the SRF facility where microorganisms use carbon to reduce nitrate and selenium.





## To put it in perspective

The 10 million litres per day of mine-affected water currently being treated by SRF at Elkview in just a trial capacity, exceeds the 7.5 million litres per day design capacity of our West Line Creek Active Water Treatment facility, and does so at approximately one-fourth the capital cost, and half the ongoing operating cost.

## A multi-pronged approach

Teck currently has more than 20 R&D projects underway related to water quality in the Elk Valley, including projects to better control release of water quality constituents at source and to develop new water treatment methods.

More information on the Elk Valley Water Quality Plan is available at [www.teck.com/elkvalley](http://www.teck.com/elkvalley).

To watch a video and learn more about the Elk Valley Water Quality Plan, visit [teck.com/connect](http://teck.com/connect).





# PEOPLE & PLACES



## Darcy Chattell

**Manager, Human Resources,  
Transformation & Change  
Calgary office**

**When did you start at the company,  
and at which site/office?**

I started in 2012 at the Calgary office, where I was responsible for supporting HR shared services for the coal and energy business units.

**Could you provide a brief description  
of what you do in your role?**

I recently moved into a new role of Manager, HR Transformation & Change, working on the company-wide digital HR transformation project that is aligned with Teck's strategic initiative in supporting a culture of innovation.

**What is your favourite part about  
your job?**

Working with operations and functional groups to understand how the HR transformation project is going to impact them, and working together to develop a plan for managing this change. I think this project will change our employees' experience in a positive way.

**What is your most memorable  
moment working at Teck to date?**

I've had the privilege of facilitating leadership programs at different sites. Observing participants change and talk about the impact of our programs on both their professional and personal lives has been truly memorable.

**What is your favourite activity  
outside of work, and why?**

I love to hike. The silence, amazing views and beauty of nature, the support of other hikers, the challenge of getting over the next ridge, the exhilaration of making the summit and the fatigue at the end of the trail.



## Chad Novotny

**Lead, Water Resources  
Vancouver office**

**When did you start at the company,  
and at which site/office?**

I started at Red Dog Mine in 2013 as a tailings and water engineer.

**Could you provide a brief description  
of what you do in your role?**

I am responsible for helping the team implement Teck's Water Policy and Water Governance framework as well as assisting mine operations, projects, and legacy sites with all aspects of water management.

**What is your favourite part about  
your job?**

The most energizing part of my job is working with subject matter experts across the organization on continuous improvement to drive environmental performance in water management. Working alongside folks with such a strong sense of ownership towards finding solutions has been great.

**What is your most memorable  
moment working at Teck to date?**

Being called upon to represent Red Dog at a meeting with key members of the community in Kivalina to discuss how we safely manage tailings and water within the tailings storage facility. On the way there, in my first-ever helicopter ride, the scenery was beautiful and it hit home what a special place Red Dog is, and how important the subsistence lifestyle is for the surrounding communities.

**What is your favourite activity  
outside of work, and why?**

I like to ski Whistler and the local mountains. And now that I am back working in Vancouver, I like to continue my hunt for the next best ramen restaurant.



## Lake Kushog, Haliburton, Ontario

**Patricia Groulx**  
**Environmental Engineer**  
**Trail Operations**

### **What is this holiday location best known for?**

The region is known for being the cottage country of Torontonians.

### **What time of year do you like to visit?**

Fall, when the tree colours are changing. We have big bonfires to use the deadwood, and it isn't humid or buggy.

### **What is your favourite thing to do while on holiday here?**

When I am not relaxing with a book, I love to hike and explore. We are surrounded by Crown land, with lakes and big boulders that we try to scale. Nearby in Dorset, there are some old fire towers to get a great view of the area.

### **Is there a local food specialty or restaurant you recommend trying?**

Kawartha Dairy milkshakes in the town of Minden. The long lines to order give you enough time to choose a flavour.

### **What is special to you about this holiday location?**

My great-grandfather built our cottage here and I spent a large amount of my childhood playing outside with my cousins. This is where I built my strong relationships with family and developed a love of nature. I am excited to provide that same experience to my son and opportunity to spend quality time with family.



## Ilhabela, Brazil

**Nicole Muñoz**  
**Prevention Specialist**  
**Quebrada Blanca Operations**

### **What is this vacation spot best known for?**

It is not really well-known by foreigners, and its visitors are mostly Brazilians. Ilhabela is very quiet and ideal for connecting with nature. It was a great experience for it to be my first trip alone.

### **What time of year do you like to visit?**

I went in December and it was a great time. The place is totally jungle; there are no buildings and all accommodation are inns.

### **What do you like to do the most during your holidays here?**

Excursions in the jungle. I saw lots of animals like monkeys and snakes. Nothing is urbanized, and it's incredible how people love and respect the jungle. One of the most special places is called the Cat Waterfall (Canto do Gato), where a tribe supposedly lived and kept wild cats as pets.

### **Is there a local food or restaurant specialty you recommend?**

There was a market where they sold liqueurs and chocolates, and you could try all the varieties before buying.

### **What's your favourite memory there?**

My favourite memory was deep-sea diving. Under the sea there were some statues and remains of shipwrecks, as well as many caves and beautiful places.

## Holiday Places

Here, we asked Teck employees to share some of their favourite places to go on holiday, and they told us a bit about what makes them special and memorable.



# A PICTURE IS WORTH 1,000 WORDS

**1.** On behalf of the British Columbia Technical and Research Committee on Reclamation, Jennifer McConnachie from the Ministry of Energy, Mines and Petroleum Resources presented the BC Mine Reclamation Award—Coal Mine Category to Warn Franklin, Superintendent, Environment, for Teck's work at Horseshoe Ridge at Line Creek Operations. The Jake McDonald Annual Mine Reclamation Award was also presented to Highland Valley Copper for its use of tailings ponds and pit lakes near Logan Lake, B.C. for aquatic habitat and as passive water treatment facilities.



**2.** A double rainbow over the Alacrán Exploration project team house in Cananea, Sonora, Mexico. Submitted by Honza Catchpole, Senior Project Geologist, North America Exploration.

**3 & 4.** Red Dog community investment provided funding to Kiana's Katyaak Elders & Youth Cultural Camp in mid-July, in recognition of the importance of the Iñupiat tradition and culture in the NANA region. Youth ranging in ages from 10 to 17 from Kiana, Noorvik and as far as Anchorage attended, taking part in activities including fish scaling and cleaning, braiding yarn strings for traditional clothing, and preparing firewood.

**5.** For the fourth consecutive year, Quebrada Blanca Operations presented scholarships for post-secondary education to youth in the community of Matilla, where Teck is a partner working with the Ecozone organization to support Indigenous development in the region.









# The Story of Coal Mountain

Milestones and memories throughout the life of the operation.

**T**his article was adapted from the *Community Connections* newsletter produced by the team at Teck's Sparwood office. For more local publications from our sites and offices, visit [connect.teck.com](http://connect.teck.com).

It was July 30, 1905 when railway builder and entrepreneur Daniel Chase Corbin gazed upon an 85-yard thick seam of high-grade steelmaking coal, boldly exposed near the base of one of Mount Taylor's minor peaks in the Elk Valley of British Columbia.

Shortly thereafter, he founded the Corbin Coke and Coal Company (CC&C) and began mining at the site, which would eventually go on to become what today is known as Coal Mountain Operations (CMO).

By 1912, production at CC&C had gained momentum but was abruptly brought to a halt by the No.1 mine fire of 1913; as a result, the company was forced to seal the mine. It was later reopened and operated using more modern mining techniques, including a steam shovel at the No. 3 mine, which was often referred to as, "The Big Showing".

In 1935, a major strike and riot resulted in the shuttering of CC&C and the mine. The town of Corbin was left deserted and mining operations ceased; however, with the Second World War depleting steelmaking coal supplies at the Trail smelter, and continuing need to supply Allied troops with materials, Consolidated Mining and Smelting (Cominco) contracted Frank O'Sullivan of Lethbridge and his crew of independent truckers to supply the smelter with coal from CMO. The

mining at the time was dangerous, using Ford trucks to drive up and down the road to the coal seam in the rugged mountainous terrain. After the war, they did not continue mining operations, but the property was maintained as a hedge against rising coal prices.

Between 1972 and 2004, the ownership of CMO changed hands several times. Teck acquired the mine in 2008, and since then, annual production has averaged 2.5 million tonnes per year.

Today, Teck is in the process of ceasing active mining operations at CMO and beginning the transition to care and maintenance, including site reclamation activities.

Corbin is currently home to recreational cyclists, ATV and snowmobile users, campers and other outdoor recreational enthusiasts. In the coming years, the mine site will be reclaimed to a state of ecological diversity that can support a range of biodiversity, social and cultural values.

"My family has been here for four generations," says Glen Hutton, resident of Corbin. "My kids grew up here, and I'm looking forward to watching my grandkids enjoy nature and the reclaimed landscape." ■

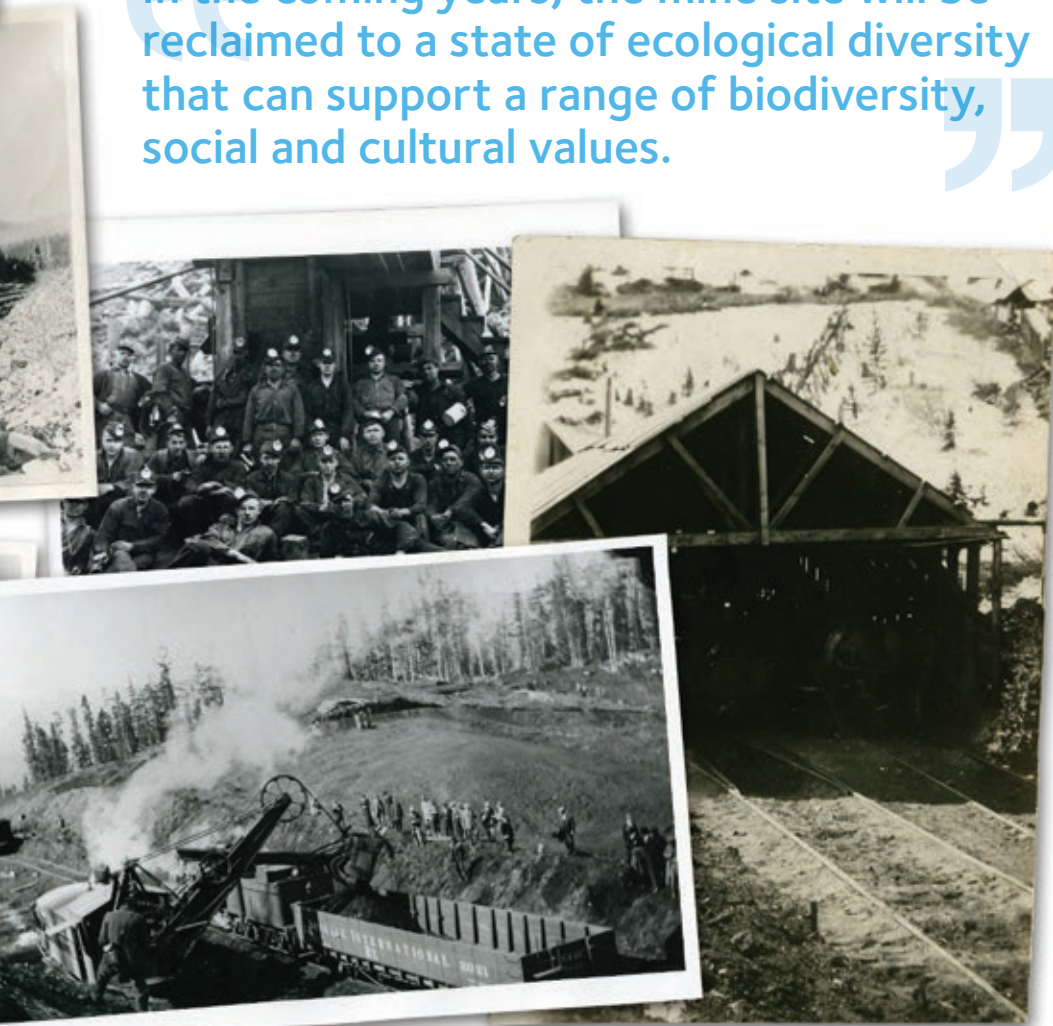
Photos courtesy of the Fernie Museum.







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## A Time of Transition

Coal Mountain (CMO), one of Teck's five steelmaking coal operations in the Elk Valley region of British Columbia, will reach the end of active mine life in 2018. When it came to closure planning, after developing a detailed plan for reclamation, the focus was finding employment opportunities for the more than 300 valued employees working at CMO—some for 30+ years—at other Teck sites within the area.

"We did not want to say goodbye to the employees who had given Teck so many years of excellent service, and who had put down roots in this community with their families," said Jared Whidden, Superintendent Human Resources, Elkview Operations.

With careful consideration and internal engagement with human resources, business development and senior leadership, a plan was developed to transition employees—from equipment operators to maintenance workers—to other Elk Valley sites, retaining their decades of experience and helping employees and their families to stay settled in local communities.

The needs of the other sites in the Elk Valley were analyzed, assessing their hiring requirements that arose through normal attrition. During this time, Teck also worked with local unions to ensure a smooth transition across sites starting in 2017, with additional employees transferred in spring 2018, and a core team remaining at CMO while work was undertaken.

"Many of our employees were born and raised in the Elk Valley, and uprooting their lives and families was the last thing they wanted to do," shares Jared. "We see this result as a win for everyone—for our closure planning and human resources teams, and for the people who work and live here."

# Not Running on Empty: Tracking Haul Truck Fuel Levels in Real Time

To keep our haul trucks running day and night, Fuel and Lube Operators are sent out across our mines to refuel them. But with the size and scale of our mines, it's not an easy task.

"Fuel and Lube Operators were having issues refueling trucks, so I went for ride-alongs to learn more," said Cody Wakeford, Specialist, Operating Excellence at Elkview Operations.

"Sometimes the haul truck they went to service was already fueled. Sometimes the operator wasn't able to find the right haul truck. And sometimes the truck in question was down for maintenance."

Cody and the Fuel and Lube Operators identified the key challenge: tracking the fuel level on the haul truck, location of the haul trucks and whether or not the truck is down for maintenance.

Thanks to an existing mobile equipment monitoring program in place at Elkview, fuel gauge sensors were already installed on each truck. Now it was about accessing that data, tracking truck location and finding a way to easily communicate that information.

In mid-2017, they partnered with Teck's digital systems team to develop a live dashboard that displays fuel levels in each truck, shovel and dump where the truck is assigned and maintenance status.

The dashboards are displayed on laptops mounted in each Fuel and Lube Operators truck and in the dispatch office thanks to a robust wi-fi network on site. When fuel levels in a haul truck are low, the operator knows exactly where the equipment is and how much fuel to pump in.

"Since we implemented the new dashboard powered by truck sensors that were already in place, Elkview is on pace to save nearly \$3 million per year in productivity costs," said Cody.

We're putting ideas like the real time fuel dashboard at Elkview to work across our operations. Learn more about our approach to innovation and technology at [teck.com/ideasatwork](https://teck.com/ideasatwork). ■



A large, dark-colored mining truck is the central focus of the image. It has a high cab with a large window and various mechanical components visible. In the foreground, a worker wearing a white hard hat, safety glasses, and a dark blue jumpsuit with reflective yellow stripes is standing next to the truck. The worker is holding a hose or cable connected to the truck. The background shows a rocky, uneven terrain under a clear blue sky.

## Ideas at Work Fund

We know that our people are the best source of ideas to help improve health and safety, sustainability and productivity across Teck. To help foster their big ideas and bring breakthrough innovations to life, Teck has launched the new \$25 million *Ideas at Work Fund*.

The *Ideas at Work Fund* will assist innovation and technology projects that have potential high value for the company, but may be too difficult to advance through normal budget processes. This could include projects that require a higher risk tolerance, coordination between multiple sites, or additional research and development support.

To learn more and how to advance an idea for consideration, visit [connect.teck.com](https://connect.teck.com).



To watch a video and learn more about Ideas at Work and our approach to innovation and technology, visit [teck.com/connect](https://teck.com/connect).



# Hazard Identification at Teck

Highlighting a health and safety focus area for 2019.

**D**uring the Courageous Safety Leadership 4 session with Teck's senior management team and General Managers, discussion highlighted our safety strengths, opportunities and safe production challenges. Along with this, time was also spent reflecting on the safety culture survey that was conducted company-wide a few years ago.

The results of that survey indicated that generally most employees felt there was a very good understanding of the hazards in our industry; however, hazard identification remains a recurring factor when it comes to incidents at Teck.

This suggests that we might be overconfident in our ability to identify hazards in the workplace, both with new or high-risk work, as well as with the routine tasks and activities we do every day.

In order to equip all employees with the skills and a common understanding of hazard identification, and to ensure everyone across the company has a clear understanding of key terms such as hazard, hazard types, risk and controls, a new hazard identification program is being developed for launch at Teck in 2019.

"We know that great safety performance comes not only from courageous safety leadership but also from our ability to identify hazards in the workplace, assess the risks and control them effectively," says Don Lindsay, President and CEO.

"Our goal will be to make the hazard identification program an integral part of our safety culture, and another step towards the vision of everyone going home safe and healthy every day." ■

**Great safety performance comes not only from courageous safety leadership but also from our ability to identify hazards in the workplace, assess the risks and control them effectively.**



# Healthy for the Holidays

In planning for the fun but often busy days and weeks ahead, you and your family can take a few simple steps to ensure a safe, healthy and enjoyable holiday season.

## Stay rested.

Adults typically feel rested after 7.5–8 hours of sleep. Small children need as many as 16 hours of sleep and teenagers need about nine.

## Keep active.

Adults should get at least 2.5 hours of exercise a week, while kids and teens should be active for at least an hour each day.

## Eat healthy.

Eat plenty of fruits and vegetables and try to limit foods high in fat, salt and sugar.

## Set a budget.

Write a gift list, determine the budget and stick to it.

## Give back to your community.

Consider adding a community service project to your family's holiday to-do list. ■

## Our Commitment to Health and Wellness at Teck

Every employee is encouraged to speak up about health and wellness, particularly if they are—or feel someone is—in need of assistance or support.

Supporting each other in taking care of our health and wellness will help us achieve our vision of everyone going home safe and healthy every day, and a wide range of health and wellness resources, services and opportunities is available to all employees.

More information about what's available can be found in the Benefits and Compensation section on **connect.teck** and through your HR representative.

Visit **teck.com/connect** to watch a video on mental health awareness, featuring Trail Operations' employees Gordon Menelaws and Derek Sordi, for their inspiring stories and more information on the resources available.





# Copper Saves Lives, and So Can You

Teck challenges students across Canada to share where their community would benefit from antimicrobial copper surfaces.

**A**s a major copper producer, we believe Teck can play an important role in increasing the use of antimicrobial copper to reduce the spread of infections. And through our new Copper & Health program, Teck is building partnerships and raising awareness about the important role that antimicrobial copper can play in improving health outcomes for people.

Since 2011, Teck has collaborated with WE, the world's largest organization of children helping children, to raise awareness about zinc deficiency, and this WE Day season, Teck launched a new Copper Saves Lives campaign at WE Day events across Canada.

When introduced on commonly touched surfaces, such as door handles and countertops, antimicrobial copper surfaces eliminate 99.9% of all the bacteria and viruses that come in contact with it.

The Copper Saves Lives campaign is challenging students to create a video demonstrating where in their communities copper surfaces could help keep people healthy. Teck will then select a winning video and install up to \$50,000 of copper surfaces in the location of their choosing.

For more information and details on how to make a video submission before January 15, 2019, visit [coppersaveslives.com](http://coppersaveslives.com). ■



Learn more about the Copper Saves Lives campaign in a video on [teck.com/connect](http://teck.com/connect).

**When introduced on commonly touched surfaces, such as door handles and countertops, antimicrobial copper surfaces eliminate 99.9% of all the bacteria and viruses that come in contact with it.**



Above left: A student and Teck employee volunteers with Don Lindsay and Melissa Tancredi, member of Canada's Olympic bronze medal-winning women's soccer team, at the Copper Saves Lives booth at WE Day Vancouver on Thursday, November 22.

Above right: Students at WE Day show off their Copper Saves Lives temporary tattoos.

Below left and right: Don Lindsay and Amanda Anzulovich, daughter of employee Adrian Anzulovich, speaking onstage at WE Day Vancouver at Rogers Arena to students and their teachers about how copper can save lives by helping prevent the spread of infection.



# IDEAS AT WORK FUND



**New \$25 million fund will  
help bring big ideas to life**

Our people are the best source of ideas to help improve health and safety, sustainability and productivity across Teck. So, to help foster big ideas and bring breakthrough innovations to life, Teck has launched the new \$25 million *Ideas at Work Fund*.

The *Ideas at Work Fund* will provide funding and/or resources to projects that have potential high value for our company, but may be too difficult to advance through normal budget processes. This could include projects that require a higher risk tolerance, coordination between multiple sites, or additional research and development support.

Let's put ideas to work and help strengthen our company and our industry for the future.

To learn more about how to advance an idea for consideration, speak to your supervisor or visit [connect.teck.com](https://connect.teck.com)

**Teck**