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# REDEFINING AN INDUSTRY

By Jillian Mitchell



Fraser Deacon



Iain Elder



Rosalind Thorn



Greg Hanks



Steve Sullivan



Garth Frizzell



Norman Adams

British Columbia stands as a majestic beacon in Canada's geographic framework. The province's strength, derived from its abundance of various natural resources, has long since been a fundamental pillar in the foundation of the Canadian economy.

For NIMG, support, investment and diversity of the province's resource sectors remains top of mind. The group had been designed to deliver opportunity and economic growth to its many valued members.

Perhaps now more than ever there is undeniable proof that the resource industry has entered an era of prosperity. "Definitely up in the North you can feel the buzz," says NIMG vice-chair Iain Elder of Amtec Ltd. (Western Region). "Everyday you drive around Prince George you see a different truck with a different company name that you've never heard of before."

Indeed, the North boasts a wealth of exploration, activity and opportunity, and Elder and his fellow NIMG leaders are quite eager to embrace it. "Anything you extract from the ground, to me, is mining," he says. "Doesn't matter how you get it out. Underground mining, pit mining, oil, gas, forestry – it's all resources. That's the new direction NIMG wants to go."

Alongside the myriad companies in the resource and energy sectors showing unprecedented growth, the NIMG has positioned itself to be a catalyst of

communication, assisting companies to capitalize on their individual strengths for the greater good. For NIMG leader Steve Sullivan of Wilkinson Steel & Metals, a change in the group's direction – from mining to the entire resource and energy sector – is going to be crucial in the years to come.

"We really need to look at the whole picture, and I think the goal is to promote business growth in natural resource development in natural gas, mining, forestry, etc.," says Sullivan. "I think that expanded mandate allows us to encompass greater diversity as economic opportunity."

NIMG Chair Fraser Deacon of Northern BC Recruitment Solutions agrees, adding that the North has proven its value beyond local potential, rendering the entire province a means by which to sustain economic growth for all British Columbians.

"The magnitude of the projects isn't just important in Northern British Columbia; it's important to British Columbia and Canada," says Deacon. "The resource projects we talk about are multi-billion-dollar projects. What I like about the NIMG is the whole aspect about promoting and supporting economic growth for the betterment of all British Columbians."

As with any team effort, each member plays a vital role in achieving the goals of community, bringing forth their passion

and strengths. For Integris Credit Union Commercial Services manager Greg Hanks, the role of NIMG treasurer requires him to bring his own skills to the table as a means of offering guidance to companies looking to be a part of a unit that breeds and fosters success.

"Business-to-business connections are vital," says Hanks. "With NIMG, I am representing Integris Credit Union as manager of the Commercial Services Department, so my role is networking, connecting with business, helping businesses succeed."

Northern B.C. is one of the fastest-growing economic regions in North America with proposed investments in the area of \$117 billion over the next decade. With this in mind the future for construction business opportunities is in the North, and to benefit, all must be prepared.

"Being prepared means developing the skills of northern British Columbians in the North, for the North. Investing today's time and effort to build a sustainable economy and labour market will provide a positive, lasting legacy for our northern communities for the future," says Rosalind Thorn, president of the BC Construction Association – North. "The NIMG and our members look forward to the incredible opportunities in front of us. Northern B.C. is the driving force for the future of our great province." ●

# 2014 NIMG MANDATE

Founded in 2008, the Northern Interior Mining Group (NIMG) promotes and facilitates economic growth within the natural resource sector for the benefit of all British Columbians, with the goal of supporting investment and increasing the range of services/products in Northern B.C.

A conduit of connectivity, the NIMG is a strong

advocate of diversification within the province's resource sector, and they do so through relationship building and information sharing. The group stands firm that northern B.C.'s businesses have the human resource capacity, knowledge and abilities, to support all types of resource projects, such as mining, pipelines, forestry, and large-scale energy projects.

**NIMG also produces an annual business directory and supply guide to encourage Northern B.C. businesses to connect with one another, access information regarding local projects, participate in networking opportunities, and further build business in B.C.**

*Additional information about NIMG's mandate, leaders, and industry events can be found on their website at [www.nimg.ca](http://www.nimg.ca)*



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# MINING IS BRITISH COLUMBIA'S BEDROCK INDUSTRY

Message from The Honourable Christy Clark, Premier of British Columbia



Exploration for mineral wealth opened up this province, and development of those resources drove the growth and prosperity we appreciate today.

The minerals mined here in British Columbia make possible countless achievements around the world – forming the foundations of power grids, consumer electronics, construction projects, and much more.

Here at home, mining operations provide economic benefits that begin with good-paying jobs that support families. Mineral royalties allow us to maintain and improve the services we depend on, such as health care, education, and roads.

Right now, our mining industry needs to reassure British Columbians that mines are safe, responsible, and conscientious neighbours.

In the wake of the Mount Polley incident, my government and I are taking decisive steps to ensure we are doing our part on mine safety, including an independent investigation and review of tailings ponds.

While we will take the necessary steps to ensure this never happens again, we are committed to a strong future for mining in British Columbia, while holding the industry to the highest health, safety and environmental standards.

Under the BC Jobs Plan, launched in September 2011, we set an ambitious target to open eight new mines and

expand nine existing mines by 2015.

Since then, three new mines have started operations, seven mines have begun construction or received permits, and seven existing mines have had expansions approved.

That's progress. And it's all due to the ambition and determination of the mining industry, not to mention thousands of hardworking men and women who depend on a healthy mining industry.

It's for their sake we extended British Columbia's mining tax credit, and worked to keep permit fees affordable for junior miners and prospectors. And, through the Skills for Jobs Blueprint, we are re-engineering the province's education system to make sure British Columbians are trained, ready, and first in line for new mining jobs.

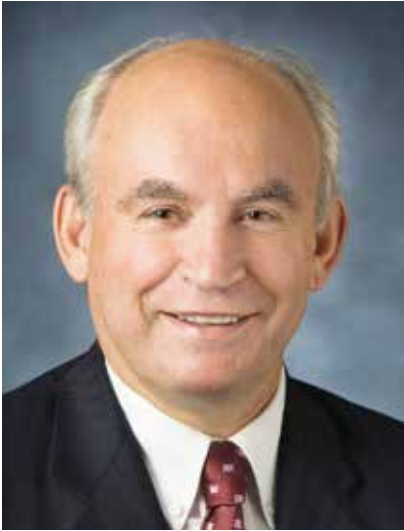
Mining will continue to play a key role in creating opportunity for First Nations communities, through a growing number of revenue-sharing agreements at sites like New Afton and Huckleberry, and by employing unprecedented numbers of aboriginal workers.

After Mount Polley, mining has a challenge to overcome – and it will, the same way it has overcome every other challenge: through hard work and determination.

Mining built British Columbia. With your hard work, it will do so for generations to come. ●

# A SUPPORTING INDUSTRY

Message from the Honourable Bill Bennett,  
Minister of Energy and Mines and Minister Responsible for Core Review



Congratulations to the Northern Interior Mining Group on your latest edition of *Resource Connector*.

More than 30,000 people in over 50 communities are employed in mining, mineral exploration and related sectors in British Columbia. The production value of mining in the province in 2013 was nearly \$7 billion – an increase of almost 150 per cent from 2001 when it was less than \$2.9 billion. Mineral exploration spending in British Columbia in 2013 was \$476 million and British Columbia now accounts for more than 20 per cent of all exploration spending in Canada.

Since June 2011, five new mines have opened in British Columbia. The Red Chris mine is expected to open by the end of 2014, and four more new mines are permitted for construction. Expansions of seven existing major mines have also been completed, sustaining over 3,000 existing jobs and creating more than 300 new jobs.

We're also investing now to ensure we have the infrastructure in place to power future mining development. In July 2014, the Northwest Transmission Line (NTL) was completed. The NTL will deliver affordable, reliable, and clean power to an area that's never before had access to the grid, unlocking the economic potential of northwest British Columbia and supporting new jobs and investment in mining at sites like Red Chris.

Mining employs more First Nations people than any other industry in British Columbia, and the Province is continuing to develop and maintain positive, long-lasting relationships with First Nations that lead to successful resource development. As of September 2014, British Columbia has announced 16 *Economic and Community Development Agreements*

(ECDAs) to share mineral-tax revenue generated by new mines and major mine expansions with First Nations.

On August 4, 2014, the tailings storage dam at the Mount Polley mine near Likely, B.C. broke. We have a responsibility as the jurisdiction where this breach took place to take a leadership role internationally to find out exactly why it happened and ensure it never happens again. And we are taking steps to rebuild public confidence.

British Columbia's Chief Inspector of Mines has issued an order to all mining companies to conduct a dam safety inspection for every tailings storage facility at a permitted mine in the province by December 1, 2014.

In addition, the Government of British Columbia, with the support of the Soda Creek Indian Band and Williams Lake Indian Band, has ordered an independent engineering investigation and inquiry into the Mount Polley breach. The inquiry is being led by a panel of three experienced geotechnical experts and will submit a final report and recommendations by January 31, 2015.

The Chief Inspector of Mines and the Conservation Officer Service are also leading investigations into the cause and impacts of the breach. If the investigations pinpoint specific ways of improving mining-industry safety, the Province is committed to making those changes at other mines across British Columbia, as necessary.

Mining is a critical industry in British Columbia, supporting dozens of communities and thousands of families. Through the investigations into the incident at Mount Polley, we will get the answers necessary to provide the public with confidence. ●





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Columbia. Established in May 2014, the Alliance was officially launched in Terrace, B.C. on October 7, 2014.

The Alliance consists of six members: Kitimat LNG (Chevron Canada); LNG Canada (Shell Canada Energy, PetroChina, KOGAS, and Mitsubishi Corporation); Pacific NorthWest LNG (PETRONAS, JAPEX, Indian Oil Corporation, Sinopec, and PetroleumBRUNEI); Prince Rupert LNG (BG Canada); Triton LNG (AltaGas and Idemitsu Canada); and Woodfibre LNG (Pacific Oil and Gas).

Taking lessons learned from the global market, the BC LNG Alliance is looking to pre-empt some of the problems that hamper LNG projects worldwide by engaging communities and getting their support while addressing their concerns, working with governments to ensure that the industry gets the policy and program support it needs to succeed and working

together towards the common goal of expanding B.C.'s LNG industry.

British Columbia is working hard, but competition is fierce. The U.S. is ahead of Canada when it comes to exporting LNG, and there are other major international players who are vying to be providers too, such as Iran, Qatar, and Australia, to name a few. Recently, Russia signed a deal to pipe LNG to China, putting pressure on countries like Canada, which has to ship gas from farther away.

B.C.'s Ministry of Natural Gas Development has responded to this competition driver.

"We know the LNG marketplace is competitive and growing. For the past two years, we have been aggressively pursuing British Columbia's natural gas export industry. In a very short amount of time, we have made tremendous progress. Major, global companies

have shown a strong commitment to B.C.'s LNG future," states a ministry spokesperson.

"It's a reminder that our industry operates in a highly competitive global market," says Keane. "More reason why LNG proponents need certainty, clarity, and a competitive fiscal framework that includes fair federal and provincial taxation."

According to the Ministry of Natural Gas Development, there are 18 LNG export proposals in the province right now. With four potential projects in Kitimat, two in the Port of Prince Rupert and another five in Prince Rupert, the northwest communities of British Columbia seem to be hot spots for future LNG developments. The remaining seven projects are spread out across the province, including two on Vancouver Island.

"Right now, it appears the frontrunner



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may be in a position to make a final investment decision either later this year or early next," shares a spokesperson for the Ministry of Natural Gas Development. "The two we would expect to see decisions from in the coming months are Pacific NorthWest LNG and Woodfibre. The largest LNG operation proposed in B.C. with approval to export is WCC LNG Ltd., led by Imperial Oil and ExxonMobil Canada Ltd. These two companies are looking at the prospect of exporting 30 million tonnes of LNG annually, and up to a maximum 800 million tonnes."

These projects could potentially have a significant economic impact on British Columbia. The Ministry of Natural Gas Development spokesperson states: "Research shows that if five LNG plants were built in the province, it could create a total investment of \$175 billion and up to \$1 trillion to the province's gross domestic product. This revenue could be used to help eliminate the provincial debt over time, reduce cost burdens for families and local communities, and support government services such as health care and education. It would also create 58,700 direct and indirect construction jobs; 23,800 permanent direct and indirect jobs for operations; thousands more of induced jobs as a result of households having more income."

Bond agrees that the labour market will be positively impacted.

"The latest data shows that a scenario with five LNG plants would create up to 100,000 jobs across B.C. by 2024, including a requirement of over 20,000 trades workers by 2018 for construction of these plants," she states. "Our labour market data shows that the top LNG in-demand jobs by 2018 will be: construction trades helpers and labourers (11,800); steamfitters and pipefitters (3,800); welders (2,200); concrete finishers (1,500); truck drivers (1,500); carpenters (1,400); heavy-equipment operators (1,100); gas fitters (1,100); purchasing agents and officers (875); and crane operators (800)."

The BC LNG Alliance is already

working towards ensuring British Columbia has the skilled labourers that the LNG industry needs.

"The Alliance is taking an active role with labour, First Nations, post-secondary institutions and the Province to ensure B.C. has a skilled workforce to construct these LNG projects," shares Keane. "The premier's LNG working group produced a report mapping out 15 recommendations on planning, skills-training, marketing, and developing best practices within the LNG sector to attract

a mobile workforce."

But what about the dangers of transporting natural gas – whether on land via pipelines or on sea in cargo ships? It brings up the obvious concern for safety and environmental protection. You don't have to scan your memory for long to remember the last big oil spill that did unspeakable damage somewhere in the world; burst pipelines, drilling rig explosions, oil tank spills, fuel barge crashes, etc. It seems there are countless ways for leaks to happen.



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Safety and environmental preservation are obvious hot buttons and are top priorities for both the ministry and Alliance going forward. The Ministry of Natural Gas Development spokesperson advises, "The appropriate environmental reviews and approvals must be met for all industrial proposals in B.C., including those linked to LNG. The environmental assessment process involves a review of all anticipated land, water and air impacts [for] proposed development.

[The] public, stakeholders and First Nations are all able to comment on these matters, as well as [on] the cumulative nature of development. Proponents must address or respond to any issues raised."

Keane is quick to share the LNG industry's excellent track record thus far.

"British Columbians should know that natural gas pipelines are built to the highest standards, and we've been transporting natural gas in this province

for over 60 years. The industry has recorded more than 135,000 voyages without any major incidents at sea or in port," he states.

British Columbia's position in a tight race for LNG projects is one worth talking about. The Ministry of Natural Gas Development spokesperson sums it up this way:

"Globally established companies are investing in B.C.'s LNG potential because they know we offer a stable business environment within which they can build successful export facilities. We are confident our competitive advantages make B.C. the best place to build new natural gas export facilities. A long history of safe, responsible natural gas development makes the province a reliable place to invest and conduct business. In addition to a low overall tax burden and a competitive royalty regime, B.C. has a skilled workforce; robust infrastructure; political and economic stability and relatively short transport times to key Asia markets. We have a vast supply of natural gas – enough to support development and LNG-export operations for more than 150 years and a cooler coastal temperature that saves energy and costs during the liquefaction process."

Keane shares a similarly optimistic sentiment.

"Our members are keen to put down stakes in this province for a very long time. B.C.'s natural gas is a world-class resource. We are fortunate our province has robust environmental protection, incredibly talented people, a great education and health care system, and a stable political environment."

A province traditionally invested in the forestry industry, British Columbia could enjoy a whole new world with the development of LNG. It's an exciting time for skilled labour, the economy and businesses – both big and small. And if the forethought and dedication to moving forward in a concerted manner are any indication, then the future of LNG in the province is very bright indeed. ●



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# LESSONS FROM MOUNT POLLEY

## Transparency and communication crucial to productive relationships in mining

By Tim Banman

On August 4, 2014, the Imperial Metals dam containing the Mount Polley mine tailings pond failed, releasing an estimated 17 million cubic metres of water and 7.3 million cubic metres of tailings and materials into Polley Lake and Quesnel Lake in south-central British Columbia – according to the numbers provided by the Government of British Columbia.

On August 18, the provincial government ordered an independent investigation and inquiry to identify the cause, as well as independent third-party reviews of all 2014 dam safety inspections for every tailings pond at a permitted mine in the province.

The incident and subsequent fallout have incited vigorous discussion among industry, government, First Nations, and the public on how this could have happened – and how to prevent a similar breach from happening again.

“We do not know yet what caused the breach. But let me assure you that MAC (Mining Association of Canada) and its members are determined to learn from this event,” Pierre Gratton, president and CEO of the MAC, stated in a speech to the Vancouver Board of Trade on September 11.

“If there are gaps in our guidance, we will fill them. If our Towards Sustainable Mining requirements are inadequate, we will improve them. If there are lessons for the province, we want to know them. If there are questions regarding design, we



Karina Briño, president and CEO of the Mining Association of British Columbia (MABC)



Rachel Hutton, partner, Stikeman Elliott



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need to know what they are so that we can address them. We expect effective regulation and oversight in concert with robust design, operation, and maintenance practices.”

The Association for Mineral Exploration British Columbia echoed the sentiment in a statement shortly after the incident: “This particular incident is not solely a government, First Nation, environmentalist, industry or company-centric problem,” said chair David McLelland. “I have every confidence that local communities, industry, First Nations and government will learn from this serious incident and will work diligently to prevent something like it from happening again in the future.”

### COMMUNICATIONS KEY

Mining supporters say while the cause of the breach remains unknown ahead of the completion of the investigation, it’s not too early to examine how the mining industry interacts with its neighbours and communicates with stakeholders. For the

Mining Association of British Columbia (MABC), ensuring industry disperses accurate information in a timely manner is crucial to the long-term success of the industry.

“We are absolutely committed to the lessons-learned approach, and the industry is looking forward to what the recommendations might be from all of these investigations,” says association President and CEO Karina Briño. “We certainly see a tremendous opportunity for the mining industry here in B.C. and in Canada to be better at communicating what kinds of measures and systems we have in place to ensure there is a demonstration of commitment to sustainability, environmental stewardship, and social responsibility.”

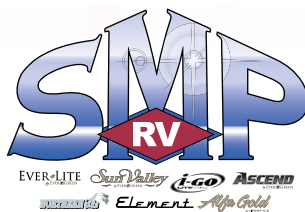
While industry has been and remains committed to minimizing its impact on the environment, finding better ways to deal with tailings via new technology could be part of the long-term solution.

“Industry is very committed to figuring out what those technologies are and

what those opportunities are to be better at it, and figure out how we make that part of the mining process better,” notes Briño.

Stikeman Elliott represents mining interests with a strong focus on investments, including mergers, acquisitions, equity offerings, securities law, and capital markets. Stikeman Elliott Partner Rachel Hutton sees opportunities for industry and government to improve their respective roles with regards to environmental stewardship and stakeholder relations in mining. “Part of the challenge with Mount Polley is that people appear to have felt genuinely caught off guard by the spill,” says Hutton. This sense of surprise may result from stakeholders being unfamiliar with potential risks.”

After disaster strikes, stakeholders typically scrutinize the track records of industry and government looking for answers. When a mine developer has as its mandate a cornerstone of transparency, they are better able to limit



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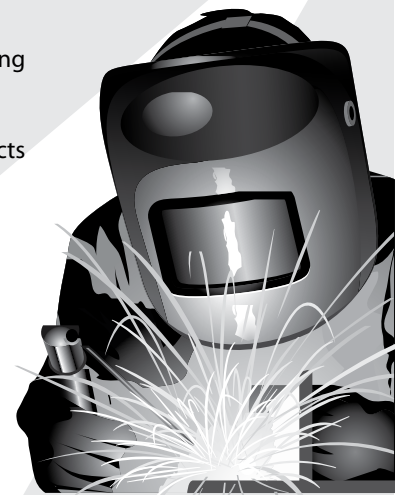
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and contain the kinds of disputes that can arise from stakeholders – including the public, First Nations, and interests groups, advises Hutton.

“A policy of transparency is a healthy policy to have in just about every respect.”

Transparency means providing easy access to compliance and monitoring reports for public scrutiny. From the legal perspective, transparency allows a corporation to point to its record. While a policy of full transparency does not necessarily satisfy every stakeholder, “it makes them more of a neighbour rather than an isolated party,” and may reduce the shock factor in the case of a disaster, as investors would be more familiar with the status of a project and its potential risks.

### MANAGING RISK

British Columbia benefits from strong environmental legislation. To maintain the authorization to operate, industry must satisfy government that it is living up

to its commitments with environmental self-monitoring and active governmental monitoring. This unseen yet crucial prevention regime coincides with all safely operated mining projects and is the bedrock that satisfies the interests of as many stakeholders as possible, while safeguarding environmental priorities.

Media reports indicate some stakeholders feel inadequate inspection may have contributed to the breach. Industry and government will have to evaluate their respective abilities to fulfil environmental obligations and figure out ways to ensure adequate resources are provided for monitoring and compliance, Hutton notes. A stronger watchdog role through legislative changes could be one result from the government’s investigation.

Another key player in assessing risk is the insurance industry. Insurance companies enforce their own stringent conditions for coverage and are typically part of the mining design and response plan. Hutton speculates insurance

companies could adjust their procedures in the wake of Mount Polley.

“I think the insurance industry is one of the best educated stakeholders around on preventing bad things from happening. That’s their job because they lose money when they have to pay out,” Hutton says.


Reports indicate investors filed a class-action lawsuit against Imperial Metals, alleging inadequate disclosure of risks involved. Corporations have a legal duty under securities law to fully forewarn of the material risks the corporation may encounter. The best protection from investor lawsuits – or the best defence in the case of one – is to provide “full, true and plain disclosure,” Hutton says. “The company has a legal obligation to inform them of all the material risks. The company can be liable to the shareholders if they fail to do so. The easy fix to that is disclosure.”

On August 14, 2014, the Office of the Information and Privacy Commissioner for British Columbia announced it would





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investigate to determine if government should have warned the public of potential risks at Mount Polley. Further scrutiny has been paid to whether adequate resources were spent on inspections and whether the government maintains a sufficiently transparent regime.

"It's worth noting B.C. has a robust statute in terms of finding recourse from the people that were directly and indirectly responsible," Hutton says. "Our environmental legislation here in British Columbia is probably the most aggressive in Canada."

### FIRST NATIONS IMPACT

One of the great damages that results from an event like Mount Polley is the decreased level of trust among industry, government, and First Nations. First Nations are affected like any other neighbour or owner, Hutton says.

"It's not just an aboriginal issue. It's an ownership issue, whether the harm from this spill hurts the land in which they have

an interest, or the environment in which they have an interest," she says. "Their degree of consent right is significant and they are definitely taking this event very seriously."

The Supreme Court of Canada decision in June to grant Tsilhqot'in First Nation aboriginal title to 1,700 square kilometres of land in south-central British Columbia has changed the landscape of aboriginal relations and may affect how industry meets its legal obligations.

While the breach has tested industry's resilience, the MABC sees opportunities for improvement.

"First Nations engagement is always at the top of the list when it come to how we do mining. We look forward to a better way of doing things," states Briño. "I think we're going to see an industry that is even more strongly committed to environmental stewardship and safety of the environment and our workers as the number one priority. We've demonstrated how that's improved over the years. I'm committed to doing a very

honest assessment."

For its part, the Government of British Columbia affirms its commitment to identifying the cause of the breach and delivering remedial action following the independent investigation.

"We have a responsibility, as the jurisdiction where this failure took place, to find out exactly why it happened, ensure it never happens again and take a leadership role internationally in learning from this serious incident," stated Energy and Mines Minister Bill Bennett, while announcing the investigation on August 18, 2014.

"Mining is a critical industry in British Columbia, supporting dozens of communities and thousands of families. The independent engineering investigation and third-party reviews of dam safety inspections for every permitted tailings facility in the province will get the answers necessary to provide public confidence following this serious incident." ●



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# MOVING THE FUTURE FORWARD

## Supreme Court decision likely to affect future project negotiations on First Nations' land

By Emily Pike



Premier Christy Clark, Minister of Aboriginal Relations and Reconciliation John Rustad and the Tsilhqot'in Nation Chiefs met on title lands in Nemiah Valley to sign a Letter of Understanding (LOU). The agreement provides a response to the Supreme Court of Canada's Tsilhqot'in Nation judgement, commits to building a more positive relationship between the Province and the Tsilhqot'in Nation and sets the groundwork for long-term reconciliation efforts.

The Supreme Court of Canada has granted the Tsilhqot'in Nation title to land it has claimed for a long time, and the decision has dictated the way governments and companies will need to relate with First Nations.

A semi-nomadic group of six bands, the Tsilhqot'in have lived in a remote valley in central British Columbia for hundreds of years. The Supreme Court's decision in June 2014 granted them title to 1,750 square kilometres of territory.

To provide some historical reference, *Tsilhqot'in Nation v. British Columbia*, 2014 S.C.C. 44 states, "The issue of

Tsilhqot'in title lay latent until 1983, when the Province granted Carrier Lumber Ltd. a forest license to cut trees in part of the territory at issue. The Xeni Gwet'in First Nations government (one of six bands that make up the Tsilhqot'in Nation) objected and sought a declaration prohibiting commercial logging on the land. Talks between the Ministry of Forests and the Xeni Gwet'in ensued but reached an impasse over the Xeni Gwet'in claim to a right of first refusal to logging. In 1998, the original claim was amended to include a claim for Aboriginal title on behalf of all Tsilhqot'in

people. [The trial judge] found that the Tsilhqot'in people were in principle entitled to a declaration of Aboriginal title to a portion of the claim area as well as to a small area outside the claim area. However, for procedural reasons which are no longer relied upon by the Province, he refused to make a declaration of title. In 2012, the British Columbia Court of Appeal held that the Tsilhqot'in claim to title had not been established but left open the possibility that, in the future, the Tsilhqot'in might be able to prove title to specific sites within the area claimed."

The Tsilhqot'in Nation's outstanding land claim dates back to 1983, when the British Columbia government granted a logging license on land the Tsilhqot'in claimed as their own. A semi-nomadic group of six bands, the Tsilhqot'in have lived in a remote valley in central British Columbia for hundreds of years. The Supreme Court's decision granted them title to 1,750 square kilometres of territory.



It's important for all of Canada to prepare for this. The Supreme Court's decision will undoubtedly apply nationwide; however, it won't alter much in areas where First Nations have negotiated treaties. In provinces like British Columbia, where the First Nations communities have retained claim to their land but have not negotiated treaties with the province, this will unquestionably have an impact.

The legal test for determining Aboriginal title following the Tsilhqot'in decision continues to have the same components set out in earlier court decisions which was clarified again in the Tsilhqot'in decision. Aboriginal title can be proven with evidence of exclusive occupation of land prior to 1846. In some cases, evidence of continuity of occupation by that First Nation will be required. For areas where Aboriginal title has been proven, either by the court or included in a treaty, the Province continues to have a duty to consult and does so because this is best practice. However, there is no legal requirement to obtain consent with First Nations asserting yet unproven aboriginal title. The Province's preference in all cases is to negotiate and reach consensus with First Nations and recommends that industry engage early with First Nations asserting Aboriginal title.

The Tsilhqot'in decision didn't just grant title to land claimed by the First Nation, it also granted rights to the land surrounding that area. The claim was for about five per cent of what the Tsilhqot'in people consider to be their traditional territory, but the ruling granted



The Nisga'a Nation and the Province sign an agreement that will guarantee the Nation benefits from development of the Prince Rupert Gas Transmission Pipeline (PRGT) project on Nisga'a Lands and in the Nass area. Right to left: Deputy Premier and Minister of Natural Gas Development Rich Coleman, Minister of Aboriginal Relations and Reconciliation John Rustad, and President of the Nisga'a Nation Mitchell Stevens. NIMG Resource Connector 2015.

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John Rustad, Minister of Aboriginal Relations and Reconciliation, shares a smile with Tsilhqot'in tribal chair Chief Joe Alphonse (left) and vice-chair Chief Roger William (centre). Alphonse and William were guests of the legislature when Premier Christy Clark apologized on behalf of British Columbia for the wrongful hanging of six Tsilhqot'in war chiefs in 1864 and 1865.

them title to "not only village sites and areas maintained for harvesting of roots and berries, but also to larger territories which their ancestors used regularly and exclusively for hunting, fishing, and other

activities."

Gerry St. Germain, a retired B.C. senator and a former chairman of the Senate's standing committee on Aboriginal Peoples, shares, "For the

first time, the Supreme Court granted Aboriginal title to land that exists outside of reserve lands."

"It should be a game changer from governments perspective because it establishes in law something that First Nations have accepted for quite some time, in that the extent of their aboriginal title interest goes beyond their reserve boundary," states Harold Calla, executive chair of the First Nations Financial Management Board (FNFMB).

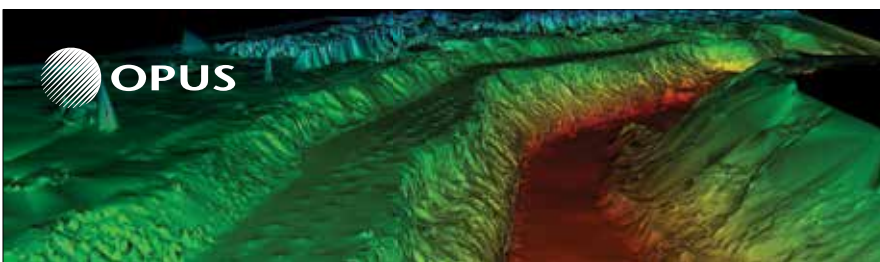
In provinces where First Nations claim title to large expanses of land, this will change the face of resource and development projects going forward, for all parties involved.

The Ministry of Aboriginal Relations and Reconciliation remains committed to negotiated settlements with First Nations and welcomes the decision as it provides certainty and supports the processes of good faith negotiation. The clarity provided by the Tsilhqot'in decision means that some adjustments are required to the tools B.C. has developed. The Province sees the ruling as an opportunity and will continue working collaboratively with First Nations and industry, as it has for many years to determine what those adjustments might be. The provincial government is working in partnership with the Tsilhqot'in National Government on a reconciliation agreement to implement the court decision, redress past wrongs and build a more effective government-to-government relationship.

The Supreme Court of Canada's ruling requires that "government and others seeking to use the land must obtain the consent of the aboriginal title holders."

"The court established tests that governments must meet when considering the impacts that certain proposed projects may have on First Nations land and ensures that the interests of those First Nations have been addressed through meaningful consultation and accommodation efforts," says St. Germain.

As Ernie Daniels, CEO/president of the First Nations Finance Authority (FNFA),



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explains, "First Nations need to be considered as partners, whether through benefit agreements or equity interest."

Calla agrees. "I think it affirms that there is an absolute need for consultation and support for First Nations for major initiatives that are being considered."

Going forward, all parties will need to come to the negotiation table with openness and honesty.

"Trust and respect must make the foundation that future negotiations are built upon. For governments, coming prepared to negotiate with First Nations should also mean coming prepared to address solutions to barriers to First Nations' access to the capital markets so they can be equity owners in projects, should they choose to participate", asserts St. Germain.

The First Nations Financing Authority can help with accessing such financing. Their goal is to provide "all First Nations with the same finance instruments that other levels of government in Canada have at their disposal."

This can be a big stepping-stone for smaller First Nations with little or no funding available to them.

"As a result of us being here, First Nations have access to capital that they otherwise didn't before," says Daniels.

The FNFMB ensures that the borrowing First Nation will be performing all the appropriate cheques and balances. "Everybody who becomes a member of the borrowing pool needs to be certified by the FNFMB as having met certain standards for the development of financial administration laws, financial management systems and financial performance," assures Calla.

While some people have worried this decision will get in the way of projects on First Nation land, Calla shares what he has heard at conferences over the last few years: "First Nations say that they're not opposed to projects being developed for the sake of being opposed; they're opposed to them being developed at any cost and they're opposed to them being

developed without an examination of the cumulative economic and environmental impacts that are resulting from the development."

St. Germain has some sage advice for First Nations looking to get involved.

"Obtain outside advice on how to deal with industry and project proponents so that you remain in the best position possible to protect the interests of your community and to maximize the social and economic benefits of any potential opportunity," he states.

It stands to reason that in the end this decision will have major positive impacts – especially to the First Nations themselves.

"It's a win-win for both First Nations and whoever wishes to partner with them. It creates unprecedented economic activity that benefits the First Nations, government and the resource companies," shares Daniels.

This decision could truly change how First Nations communities look in a few short years. St. Germain sees a bright future for these communities if they look further ahead than just getting the job done. He recommends the following, "First Nations should consider structuring their involvement in these projects in a way that builds capacity for future generations. Skilled labour is an essential part, but First Nations people should not be precluded from gaining experience at the management and executive level of these projects. Companies and governments must be willing to support First Nations capacity advancement in these areas as part of the deal."

It could be argued that this decision is a long time coming and the type of situation that involves a bit of extra effort now; once worked out, though, it will be for the betterment of all in the future.

"The government has gotten it right, in my view, in that our natural resources are the key to having a sustainable government for the next hundred years, and if we don't get to those markets we are going to lose that opportunity," concludes Calla. ●



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# WASTE NOT, WANT NOT

## British Columbia adopts new eco-conscious energy systems

By Jillian Mitchell



Former UNBC employee Doug Carter shows off the pellets used as fuel in UNBC's wood pellet heating system.



UNBC's wood pellet heating system was designed to showcase domestic uses for pellets like this one, produced in BC.

Prince George rests at the epicentre of an active forestry industry, with three pulp mills and numerous sawmills to boot. Accordingly, over the last few years, this increasingly eco-conscious city has adopted a bioenergy initiative to further reduce waste wood – such as sawdust, bark and wood chips – generated by its flourishing forestry sector.

Approximately 80 per cent of the energy supplied by the City of Prince George's downtown thermal District Energy System (DES) is derived from biomass, a biological material derived from living or recently living organisms. In this system, heat produced from Lakeland Sawmills' wood residue is routed by way of buried pipes to provide space

and domestic hot-water heating for many of the city's buildings – City Hall, the Four Seasons pool, the Civic Centre, Two Rivers Art Gallery, the library, Coliseum, RCMP building, and the Wood Innovation and Design Centre building.

According to Gina Layte-Liston, the City's associate director of public works, the DES system, which was commissioned

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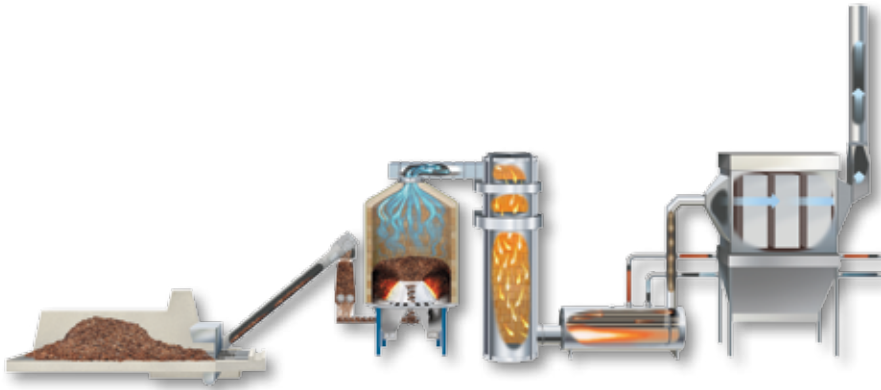
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This image illustrates how UNBC's Bioenergy Plant turns wood waste into gas which is burned to heat many buildings on campus.



UNBC's Bioenergy plant has helped dramatically.

in June 2012, is energy- and cost-efficient, producing accurate estimates of heat and hot-water bills over a long-term agreement.

As part of the project, Lakeland Sawmill installed an electrostatic precipitator, or ESP, a highly efficient gas-filtration device used as a method of

pollution control for particulate matter. Though the ESP has been an effective means of pollution control, it does not increase the overall system's productivity.

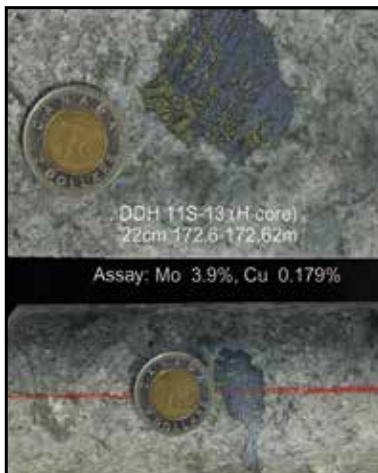
"When it comes to the environment, one of the major benefits of a DES – and specifically a biomass system [with an electrostatic precipitator] – is a 30-tonne

reduction in particulate matter," says Layte-Liston, who notes that particulate matter is a priority issue in the Prince George airshed.

Officials involved with the DES have forecasted particulate-matter declines due to the reallocation of waste wood, particularly through the reduction of

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BC Premier Christy Clark and Cariboo-Prince George MP Dick Harris join other dignitaries during the ribbon-cutting ceremony at the opening of the Bioenergy Plant.

diesel trucks previously utilized in the area's waste-wood disposal. "Almost 70 tonnes per year would be avoided through the decrease of 300 fewer trucks moving through this air shed on an annual basis," adds Layte-Liston.

The University of Northern British Columbia (UNBC) has also jumped onboard the biomass movement. Since 1994, the post-secondary institution has diligently worked to reduce its carbon footprint, incorporating many energy-

efficient features. The latest example of this initiative is the university's district bioenergy heating system, which uses hot water to distribute heat (generated from wood waste) from a central plant to the various campus buildings.

"This single point of heat input enabled us to shift the majority of our campus heating from natural gas to local wood waste by adding one connecting heat exchanger," says David Claus, assistant director of facilities management for UNBC.

Claus reports that the \$15.7-million UNBC bioenergy system has reduced the university's fossil-based carbon-dioxide emissions by nearly 70 per cent since operations began in 2011.

In this system, wood from local sawmills is delivered by truck and fed into the system's gasification process, where a boiler heats hot water to send to campus.

"The gasifier differs from normal combustion in that the wood is first heated in an oxygen-starved

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BC Premier Christy Clark addresses the crowd at the grand opening of the UNBC Bioenergy Plant on March 18, 2011.

environment to produce a flammable gas," explains Claus. "This gas is then ducted to a second vessel where air is added for complete combustion. The result is well-controlled and thorough combustion (very little unburnt carbon remains in the ash), as well as low wear on the refractory within the combustion areas."

Fine particulate emissions are often a concern for wood-based heating systems. However, Claus reports this particular system, along with the inaugural UNBC green-energy project (a 400-kilowatt wood-pellet boiler that heats the I.K. Barber Enhanced Forestry Laboratory), features emissions-filtration equipment that ensures particulate emissions from wood combustion are equal to, or less than, the natural-gas appliances they are replacing.

For Claus, the future of biomass-based energy systems looks bright. Add to that, the university has plans in place to further reduce waste produced by the already eco-conscious system. "UNBC is conducting research into the beneficial use of the ash produced by the bioenergy facility," he adds. "Initial indications are that it is useful as a liming agent to raise the pH of acidic soils."

The biomass fuel-processing industry is not new to Prince George. Since 1994,

Pacific BioEnergy has been operating a wood-pellet processing facility that supplies clean bioenergy to a global market.

"The growth of the wood-pellet sector has really been about the utilization of the product by power-generation companies internationally," says Brad Bennett, vice-president of operations, Pacific Bioenergy. "British Columbia currently exports somewhere in the neighbourhood of 2 million tonnes of wood pellets to international markets today. That has literally doubled over the last five years."

Bennett says the company's aptly dubbed "B.C. Advantage" encompasses a multitude of factors that render the province's forestry industry the prime supplier of this sustainable-energy source. Two such examples are the region's well-developed sawmilling sector and the mountain pine beetle epidemic, that rendered lumber unsuitable for production. "Bottom line is there's raw-material supply," says Bennett.

The biomass company is well situated for exporting as it is relatively close to both the ocean and to the region's well-developed rail infrastructure. "There are now two load-out facilities for export markets and we have publicly held lands that have a very good environmental-sustainability track record," he adds.

Biomass is widely used in European and other international electrical-generation facilities, where it currently offsets the use of coal through supplemented wood pellets. In addition, in Canada and many other countries, experts are developing systems that will produce electricity from wood pellets alone.

According to Bennett, in this burgeoning market, British Columbia has the advantage. "Numbers that we've seen suggest that B.C. could produce up to somewhere in the neighbourhood of eight million tonnes of wood pellets," he says. ●

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# LEARNING IT NEW SCHOOL

## Northern post-secondary education evolves with the changing mining landscape

By Tim Banman



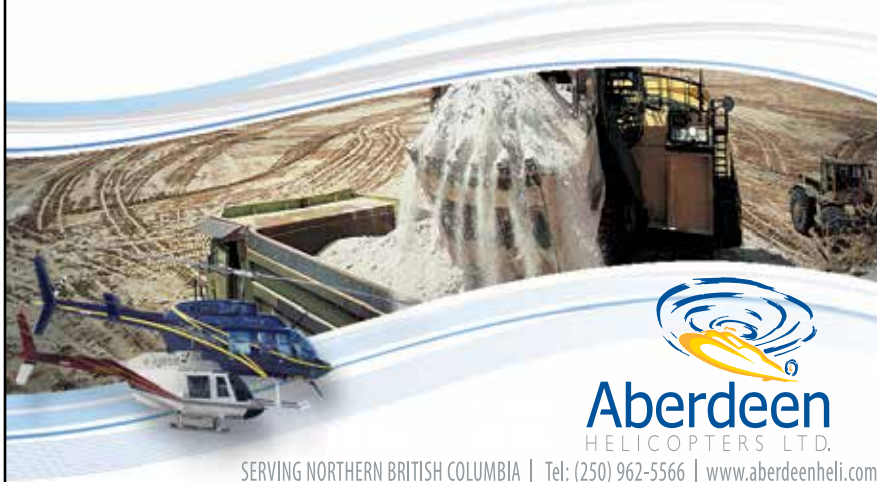
As the mining and exploration landscape changes over time, so too do the post-secondary institutes educating the next generation to take the field in mining and exploration careers. In recent years, Northwest Community College, Northern Lights

College, the College of New Caledonia, and the University of Northern British Columbia (UNBC) have developed innovative ways to connect with students and industry and provide the labour force for the economy of tomorrow in northern British Columbia.



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### **NORTHWEST COMMUNITY COLLEGE – SCHOOL OF EXPLORATION & MINING**

Northwest Community College plays a critical role in delivering educational programming to build the necessary skilled workforce in northwestern British Columbia, a region poised for development in exploration, mining, forestry, LNG, and other natural-resource sectors.

The year 2010 marked the 10th anniversary of NWCC's award-winning School of Exploration & Mining (NWCC SEM). For the past decade, NWCC SEM has worked in partnership with communities and industry in providing students with hands-on training for mining and exploration careers. The

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- 🕒 Prospecting Basic Training
- 🕒 Surface Diamond Driller's Helper
- 🕒 Workforce Exploration Skills Training





school is built on NWCC's successful track record of providing education to rural and remote communities, especially aboriginal communities, in partnership with the Smithers Exploration Group's (SEG) knowledge of industry needs and skill-gaps across the province. SEG is dedicated to the advancement of mineral exploration and mining in northwestern British Columbia in partnership with the Association for Mineral Exploration in British Columbia and other regional exploration groups.

As a responsive, nimble and mobile

school, NWCC SEM has trained more than 1,300 students – 72 per cent who are aboriginal – from over 113 communities across Canada. As well, 72 per cent of graduates have found work or returned to school.

NWCC SEM offers certificate programs, which run anywhere from one to 12 weeks. SEM offers certificates for entry-level occupations, including certificates for drill-core technician, field technician, diamond-driller's helper, environmental services and forestry worker, health and safety specialist,

wilderness navigation expert, and survival and safety. The school is currently working on developing seamless laddering opportunities into diploma and degree programs at NWCC and other post-secondary institutions across the province. For trades like heavy-equipment operator, electrician, millwright, and welder, NWCC offers programs through its trades department, centred in Terrace.

In recent years, NWCC SEM has partnered with School District 54 and industry sponsors to provide a dual-credit program for high school students, which allows them to achieve credits towards their high school diploma while earning a certificate in environmental monitoring.

"We've been really evolving over the past few years to focus more broadly on the natural-resource sectors because nearly all of our programs provide transferrable skills," says Project Administrator Danielle Smyth. New offerings include a field-assistant certificate for exploration, mining, and oil and gas industries, as well as a new mineral-processing-operator certificate program, based on the Mining Industry Human Resources Council national occupational standards for working as an operator in a mill.

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welcomes students from all academic levels and focuses on building capacity and developing employability, teamwork, leadership, and conflict-resolution skills. These are the skills that lead to employment and retention of employment in graduates. With a high participation of aboriginal students, SEM provides elder mentoring and teaches cultural awareness. The diverse focus of NWCC SEM has helped many

aboriginal and young students find work in mining, says Smyth.

NWCC SEM replicates a realistic natural-resource sector work environment to give students an edge in the workforce. Training camps can be mobilized in any location, and students who complete programs in this environment experience a high degree of success in the program and in employment. Students in NWCC SEM

training camps receive a taste of what it's like to be away from home and "offline", without regular Internet access, Smyth notes. These programs include outdoor activities such as hiking, map, compass and GPS training, and soil sampling.

As the lead partner in the BC Centre of Training Excellence in Mining (CTEM), NWCC has also played a key role in promoting collaborative educational

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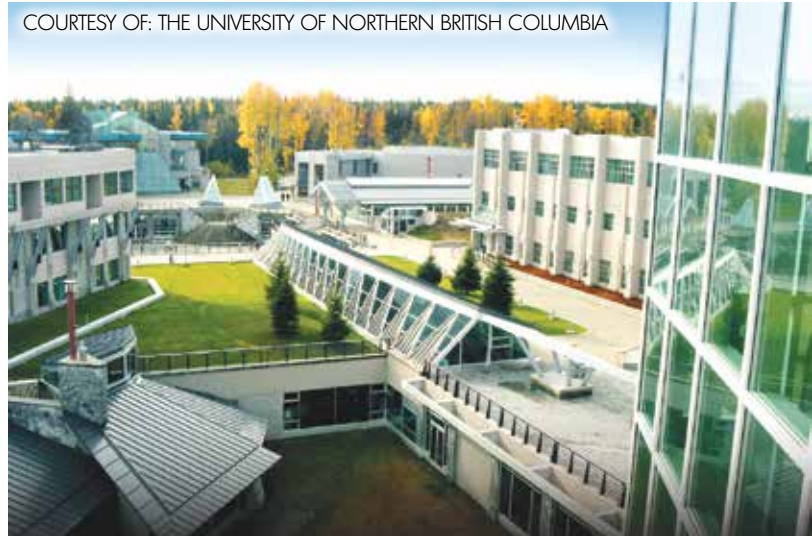
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programs that meet the needs of the exploration and mining sectors in British Columbia. NWCC sees CTEM as an important approach to filling job shortages, according to Smyth. The provincial government established the CTEM in 2013 to ensure students have access to targeted training that will provide them with strong, marketable skills in the mineral industry, she says.

### **NORTHERN LIGHTS COLLEGE**

To meet growing labour requirements in the northeast, Northern Lights College focuses on providing diverse, hands-on learning experiences, which include on-site work placements, simulation exercises, and workshops. All trades and apprenticeships include an unpaid work practicum, supported by industry.

Northern Lights offers training for students interested in being heavy-duty equipment technicians, carpenters, industrial-instrumentation mechanics, electricians, power engineers and gas processors, plumbers, welders, and automotive-service technicians. Northern Lights certifies graduates up to the level of Red Seal level and provides the applicable safety training. When in demand, the college also offers heavy-equipment operator training.

"As industry adopts new technologies and initiates new projects, we are continually evolving to reflect such advances and changes," says Loren

Lovegreen, vice-president, academic and research.

Northern Lights offered the unique Mothers to Miners program, in partnership with Peace River Coal, to encourage women with children to enter trades. The 12-week program helped prepare the participants for entry-level jobs in surface mining. The college may also re-offer the mining fundamentals program in Dease Lake.

Northern Lights collaborates with other institutes, organizations, and industry to achieve excellence in education. Last year, a contingent from Northern Lights and NWCC met with Kentucky Coal Academy in the United States to learn about underground mining. Lovegreen says it was a wonderful opportunity to see what is offered and learn how other programming can be incorporated into Canada. Additionally, Northern Lights recently received funding from the Immigrant Employment Council to create and pilot a hiring assessment toolkit to assist mining employers in assessing international applicants.

Northern Lights upholds involvement with the Northeast Regional Workforce Table to keep the college's finger on the pulse of industry trends. Lovegreen says that Northern Lights also remains actively involved in CTEM, which she says serves an important function as a "virtual hub" for northern educators to collaborate with industry.

NWCC, Northern Lights and UNBC

also work together on the Northern Post-secondary Council to help facilitate access to education in support of economic needs.

The various collaborative initiatives are "very important and instrumental in really addressing the needs of industry and what programming can be offered to students," says Lovegreen. "We're very committed and make sure we have a place at the table where these discussions are being held so we are involved and also have a voice."

### **COLLEGE OF NEW CALEDONIA**

The College of New Caledonia's (CNC) focus on offering practical, job-orientated mining programs has sparked success for a generation of students. Based on a model of working closely with local industry, CNC continues to evolve with the changing labour market needs and provides prime opportunities for students to succeed in natural-resource careers.

"We're responsive to our community," says Ann McCormick, campus supervisor at the Fort St. James location. "We're very much industry and community-driven as a small regional campus."

The movement towards mining gained steam as forestry wound down and mining exploration picked up in the area. The development of the Mount Milligan mine, owned by Thompson Creek Metals, accelerated the need for a local



PHOTO CREDIT: MOUNT MILLIGAN



PHOTO CREDIT: MOUNT MILLIGAN

workforce, adding momentum for CNC's Mackenzie and Fort St. James campuses to expand programming in support of the mine.

"We have seen a real uptake of people interested in going back to school for mining and making a transition from forestry to mining," reflects McCormick.

CNC stepped up with an initial environmental field assistant program, followed by a program for pit and mine work, the mine industry certificate (MINE). As the mining industry's needs grew with the building of the mine and processing

plant, CNC offered the minerals processing operator certificate program (MPOC) to train mill workers. The program includes emphasis on digital literacy, crushing, science of mills, chemicals, and essential problem-solving skills. As new mining exploration companies came into the regional areas, CNC seized the opportunity to create curriculum for continuing education programs for drill-core technicians and drillers' helpers.

To keep pace with economic changing times, CNC vigilantly evaluates the changing economic landscape for new education opportunities.

"We can be as responsive as industry needs us to be, but we don't want to be creating anything unless there is opportunity for employment at the other end. It has to really be industry driven," notes McCormick.

CNC sees opportunities in liquefied natural gas, and currently offers a 15-week pipeline-training program in Fort St. James, Vanderhoof, and Prince George. The college plans to offer certification in support industries that grow alongside industry, such as hospitality and camp support. CNC also offers programs for welders, heavy-duty mechanics,




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millwrights, and heavy-equipment operator – areas that provide the transferrable skills required for work at the mine site, notes McCormick.

Certificates from CNC are recognized as building blocks that can be applied at other post-secondary institutions for students looking to advance their education. Students can apply some of their certificate programs towards other programs earned at CNC, in programs at the British Columbia Institute of Technology or a degree at UNBC.

### UNIVERSITY OF NORTHERN BRITISH COLUMBIA

The University of Northern British Columbia has responded to industry employment needs by consistently focusing on providing the skills needed to excel in environmental science and engineering careers in mining. UNBC

educates students to write the essential computer programs, run operations systems, understand how sensors work, and collect data for the efficient running of a mine site.

Environmental engineering focuses on tailing ponds, effluent streams, groundwater hydrology, and understanding impacts on surrounding forests and ecosystems – everything surrounding the chemical aspect of mineral extraction.

“If you think about mining, mining is two things: engineering and chemistry,” explains Todd Whitcombe, chair of the chemistry, environmental science, and environmental engineering program at UNBC. “The chemistry behind mines is somewhat of the overlooked side because people tend to see big earth movers and 70-tonne cranes, but somewhere there is a chemist doing analysis on the material – and you need

to train people how to do that sort of work.”

The environmental engineering program is relatively new, at less than 10 years. Only six students graduated from the program in the first year and 10 in the second. Twenty-three graduated from it last year.

“We’re growing,” says Whitcombe. The program aims to reach 40 graduates per year – keeping pace with the growth of industry.

The environmental science program can lead graduates to jobs as environmental consultants, technicians or technologists. Consultants end up working in reclamation, waste management and compliance monitoring, while technicians focus on conducting sampling, analysis and monitoring. In environmental science, students receive a solid foundation in basic science like chemistry, earth, aquatic, soil and atmospheric science, says faculty member Mike Rutherford.

Both degrees require students to work as interns or conduct research projects in directed studies. “It’s a good opportunity for students to hook up with mining and get that experiential learning as a requirement for their undergraduate degree in environmental science,” says Rutherford. “We’re trying to give them the toolkit or skill set to take advantage of any career opportunities in the mining industry that come up.” ●



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# TRAINED IN THE NORTH TO STAY IN THE NORTH

## Northern Opportunities launches students into trades careers

By Tim Banman



Reinforcing the motto “trained in the north to stay in the north”, the Northeast B.C. Community Learning Council created Northern Opportunities in 2002 to build awareness and increase participation in trades and technical careers among secondary school students. After 13

years, Northern Opportunities alumni speckle the landscape of northeastern B.C., with many former students now gainfully employed in trades across the region.

Recognizing the region’s particular labour needs and looming regional

labour shortages, members of industry teamed up with Northern Lights College and secondary schools to meet the challenge head on. The partnership resulted in a shared vision to help students excel in trades and find local jobs. Through Northern Opportunities, students can start down a career path by learning foundational trades while still attending high school. Students receive dual credits towards both a high school diploma and trades certification.

“The vision was to develop strong, vibrant northeast B.C. communities where young people have seamless pathways to successful careers,” says Frances Armstrong, career programs manager.

Students can take advantage of Northern Opportunities in a variety of ways. For instance, a student might complete required secondary curriculum in Grade 11 and spend Grade 12 taking foundational trades programs. While simultaneously completing secondary and post-secondary education, the school district registers students as apprentices and sponsors their technical training.

From 2009 to 2013, 470 students enrolled in post-secondary trades training in northeast B.C. In the same time period, 185 students successfully completed secondary school apprenticeships.

Traditionally, schools don’t do the best job matching themselves to students’ needs, says Keith Maurer, director of Instruction at partnering School District #59. However, through hands-on trades training, students come alive to achieve academic and career success.

“All of a sudden we see that their



engagement has increased, their motivation has increased, and they're learning at a rate that they just haven't before," he says.

The trades programs recognize horsepower that wasn't previously appreciated, he adds. "The success stories that we continue to hear from kids and parents, about where they have gone to and how this has impacted their lives, is phenomenal."

Initially, Northern Opportunities was geared primarily towards meeting oil and gas labour needs, but the initiative is keen to build partnerships with mining and exploration. Northern Opportunities has partnered with ancillary companies that work for mines, and exploration continues on finding a program to help students land jobs directly in mining. Current offerings provide transferable skills suited for both mining and oil and gas sectors, such as courses for heavy equipment mechanic, welder, automotive service technician, instrumentation mechanics, and millwright.

Education partners include include School District #59 (Peace River South), School District #60 (Peace River North), School District #81 (Fort Nelson), Chalo School, Northern Lights College, and the British Columbia



Institute of Technology. Other partnering industry members and organizations include CanFor Corporation, Spectra Energy, North East Native Advancing Society, TRADE.S. Northeast, Encana Corporation, Northern Development



Initiative Trust, Canadian Natural Resources, BC Hydro, and Shell Canada. ●

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# THE WAITING GAME

## BC Hydro and Power Authority seeks to add capacity to electricity grid and awaits decision on Site C project

By Melanie Franner



Forecasts from Statistics Canada and BC Hydro and Power Authority respectively suggest that British Columbia will see an increase of around 1 million people in the next 20 years and a 40 per cent increase in demand for energy. Its current integrated electricity system does have a bit of extra capacity, one

that can carry the province through to 2019 for capacity and 2024 for energy, depending on how load demand materializes.

### ADDING CAPACITY

The proposed Site C project would change all that – at least as of fiscal

2024, the earliest anticipated date the dam and generating station could be operational. Were it to be given the green light, Site C would provide 1,100 additional megawatts of capacity into the province's integrated electricity system each year.

And, at an estimated capital cost of \$79 billion, the cost per megawatt would be \$83 – among the most cost-effective options possible.

"One of the reasons why Site C is a good addition to the province's electricity system is that it would use water from the existing Williston Reservoir, which was created by the building of the W.A.C. Bennett Dam," explains Dave Conway, community relations manager, Site C Energy Project, BC Hydro and Power Authority. "You would get 35 per cent of the energy produced at the W.A.C. Bennett Dam with only five per cent of the reservoir area."

BC Hydro and Power Authority currently has two existing dams and generating stations already located on the Peace River. The W.A.C. Bennett Dam was completed in 1968. It



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has a generating capacity of 2,790 megawatts, measures approximately two kilometres across by 200 metres high and is an earth-filled dam. There are 10 generators at the station, each of which

produces approximately 275 megawatts of capacity.

In 1980, BC Hydro and Power Authority completed the second dam and generating station on Peace River,

located about 23 kilometres down river. The Peace Canyon Dam is concrete, measures around 50 metres high, has four generators, and produces 700 megawatts of capacity.

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The Williston Reservoir (which was one of the largest man-made reservoirs in the world at one time) contains enough water to sustain both the W.A.C. Bennett and the Peace Canyon Dams for two to three years. Because of this, the Peace Canyon's Dinosaur Reservoir is much smaller in size than the Williston Reservoir and holds only enough water to run the generating station for about 12 hours.

Site C would again rely upon water from the Williston Reservoir, eliminating the need for a large reservoir.

"Site C would necessitate the flooding of approximately 5,560 hectares of land," explains Conway. "That is substantially less than would be required if a new, larger reservoir on the scale of the Williston Reservoir would have to be built."

### **NAVIGATING THE PROCESS**

According to Conway, Site C was originally identified as a potential site for a dam and generating station back in the late 1950s, but the BC Hydro and Power Authority didn't submit an application for a Certificate of Public Convenience and Necessity until the early 1980s. The British Columbia Utilities Commission (BCUC) eventually concluded that Site C was an "acceptable" project but that BC Hydro had not demonstrated the need for the project and had not adequately looked at alternative sources of generation.

In 2004, the file was opened once more and a feasibility study was undertaken.

"We began the process again in 2004 and have been working in earnest since 2007," states Conway.

The environmental assessment process on the project began in 2011 when BC Hydro filed the Site C project description. The federal and provincial governments agreed to a co-operative environmental assessment process to review the project. A joint review panel was created in the summer of 2013.

The panel took all of the documentation submitted by BC Hydro and Power Authority, First Nations,

communities and stakeholders. They reviewed the materials, asked for supplemental information (which was provided), and held a series of public hearings in December 2013 and January 2014. The hearings were held primarily in those areas that would be affected by the project and included aboriginal communities. Among those present at the meetings were members of the Peace Valley Environmental Association, an independent group formed in 1975 to specifically argue against the building of Site C and one of the main opponents against the project.

"There is opposition against the project," admits Conway, who adds that the landowners and aboriginal groups identified as being impacted by the project would be compensated. "We are currently negotiating impact-benefit agreements with four different aboriginal groups and have made offers of accommodation to all the First Nations that the joint review panel has identified as being impacted by the project."

The panel produced its final report on May 1, 2014. Although it did not make a recommendation either in favour of or against the project, it did have a series of 50 recommendations (37 directed to BC Hydro and Power Authority and 13 directed to the federal and B.C. governments).

"At this point, we have no approval to move forward with this project," says Conway, who adds that although BC Hydro and Power Authority has since received Environmental Assessment Certificates from both the federal and provincial governments, it is now awaiting the B.C. government's investment decision. This is expected to be made by the end of 2014.

"For the project to proceed, we are going to need the government investment decision approval, hundreds of permits, and the federal fisheries and navigable waters authorizations," explains Conway. "If we do receive the government investment approval, we hope to be in the site preparation activity

stage in mid-January 2015. But Site C won't be online until fiscal 2024."

### **MAKING DUE**

While BC Hydro and Power Authority awaits the decision on Site C, the utility company is working on other energy-savings plans in the interim. Among these are changes to site management power programs (like PowerSmart) that will produce greater efficiencies from residential, industrial and commercial customers; a review of independent power producers, such as those in the micro hydro and wind sectors; and the upgrading of existing facilities.

"We're trying to squeeze out as much extra capacity out of the existing system as we possibly can," says Conway.

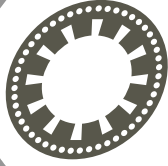
If Site C does get the official go-ahead, it would produce enough electricity to power the equivalent of about 450,000 homes in the province per year. It would also be a source of clean and renewable electricity for more than 100 years, generating among the lowest levels of greenhouse gas emissions, per gigawatt hour, compared to other electricity-generation options.

And let's not forget about the economic impact. Site C is expected to create approximately 10,000 person years of direct construction employment and approximately 33,000 person years of total employment through the facility's development and construction.

"We're anticipating strong growth in the province and in northern B.C., in particular, over the next 20 years due to the influx of significant industrial development, such as mining and liquefied natural gas," concludes Conway. "Site C would be one more resource that we could use to help meet the anticipated growth and load demand.

At the same time, it would deliver important benefits like dependable and flexible capacity, regional economic development, job creation, and increased government revenues."

The benefits of Site C could be significant but for now, it's a waiting game. ●



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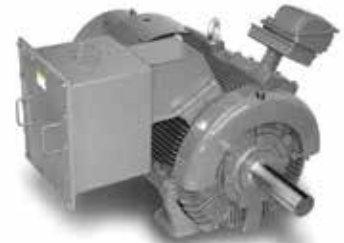
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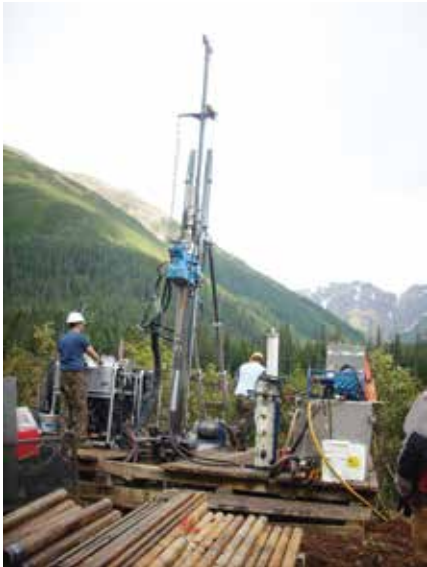
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# AWAKING A SLEEPING GIANT

## Seabridge Gold and local communities band together to realize new mine

By Jillian Mitchell



Drill at KSM.

For the Nisga'a Nation of northwestern British Columbia, the vision of community is best captured in a simple and elegant Nisga'a saying: sayt-Kil'im-goot, which translates into "one heart, one path, one nation." Fittingly, the wisdom of the

Nisga'a will serve as a compass for Seabridge Gold Inc. and its proposed Kerr-Sulphurets-Mitchell (KSM) gold/copper mine near Stewart, B.C., one of the largest, undeveloped gold projects in the world.

Over the past six years, Seabridge has worked hard to ingratiate itself into northern British Columbia communities, fostering strong bonds through a common commitment to sustainable mining and local economic development. These goals stand at the forefront of an action plan that the company believes will ultimately guide the area and its residents into an unrivalled era of economic opportunity and prosperity.

Since acquiring KSM in 2000, Seabridge has spent \$200 million in exploration, engineering, and environmental work to prepare the project for production. Already, the company has had a positive impact on the local business communities surrounding KSM, and Seabridge Chairman and CEO Rudi Fronk anticipates an even brighter future.

"KSM will be the largest mine ever built in Canada and will take about four to five years to build," says Fronk of the project, that would effectively put Canada on the map as a top producer of gold and copper once the mine enters production. "We believe over 2,000 direct jobs and almost 5,000 indirect jobs will be created just for the construction of the mine. And then once the mine is up and running, we're looking at over 1,000 direct jobs annually over a 50-year mine life."

Putting this assessment into context, the mine's annual metal flow over its 50-year lifespan is expected to increase Canada's GDP by over \$42 billion and will also have a direct impact on the GDP of British Columbia. Fronk confirms that much of the base metal produced will be consumed overseas in places like China, which will positively affect

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With countries like Indonesia and Bolivia facing government expropriation of several projects and with Chile and Peru facing a lack of infrastructure and strong local opposition to large projects, Canada is proving to be an ideal mining landscape for Fronk and his team.

"I've been in the business for more than 30 years, I've operated globally, and I will tell you that there is no better place for mining than in Canada," he adds. "I think the project speaks for itself in terms of the size and also the uniqueness in one of the safest political jurisdictions."

Given the size of the KSM project and the geographic area in which it resides, environmental assessments were the first of many challenges addressed by Seabridge. As with any mining operation, environmental assessments are a critical part of a mine's future and feasibility.

"The environmental assessment



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process in Canada is expensive and time-consuming, but it works," says Fronk. "We've been in the environmental assessment process since 2008. We then spent the next six years working closely with Treaty and First Nations, with both provincial and federal regulators, as well as with the Alaskan authorities."

After completing 32 working-group sessions with regulators and Treaty/ First Nations, plus 57 visits to Treaty/ First Nations communities, Seabridge implemented significant design changes to the proposed mine, including tailings management design and road access. The company then submitted its environmental assessment application to the federal and provincial governments in February 2013 and in late July 2014, received approval from the provincial government.

As the company awaits final approval from the federal government, which is expected by the end of October 2014, support is already in place at a grassroots level from both non-aboriginal and First Nations communities, which has

been a top priority for Seabridge from day one.

"We've announced agreements already with the Nisga'a Nation, which is important because they're the one treaty nation that has a settled land claim and Treaty with the federal government," says Fronk. "We've reached an agreement with the Gitksan and we have the endorsement of the other First Nations we're dealing with. We have also been endorsed by the towns of Smithers, Terrace, and Stewart."

With a favourable federal government review of the environmental assessment, Seabridge will then move forward with its plans to partner with a major mining company that has the financial and technical skills to build and operate a project the size of KSM.

"We've been in dialogue with potential partners for years," says Fronk. "When you find something this big, rest assured the big companies want to learn more about it. That's their business; they need projects like this."

The past three years have brought



Mitchell deposit at KSM.

about economic difficulty for the larger gold companies due to the price of gold dropping by 35 per cent, cost overruns at projects under development, as well as projects stalled due to local opposition. And with the size of the KSM project, the number of companies that have the ability to handle the entire project from a technical, financial and social-licensing standpoint is quite narrow. As a result, Seabridge's ability to secure a favourable deal has been a challenging process. But Fronk says that the discovery of Deep Kerr (a higher-grade deposit that contains more copper) now gives the company some much-needed leverage at the bargaining table.

"That discovery has now brought

forward not just gold companies as potential partners, but (also) the very large base-metal miners," he says. "Having more able bodies at the table to discuss deal terms should help create competition and allow us to get a better deal done."

In addition to Deep Kerr, another gold-copper discovery has been unearthed beneath the Iron Cap deposit. An initial resource estimate is expected in the first quarter of 2015. Seabridge speculates that like Deep Kerr, each of the other three porphyry zones, including Iron Cap, will possibly all have feeder zones underneath. Given these more recent developments, the economic implications for the mine from a profit standpoint once it begins production are encouraging, and Fronk is optimistic about the future of KSM, the surrounding communities and the residents of the area.

"This is a project that just keeps on giving from the exploration side," he says. "And we don't see any ending in sight." ●



Aerial view of KSM camp.



Copper precipitates on recently glaciated surface at Mitchell Zone.

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# FUTURE FLOW

## The proposed Merrick Mainline Pipeline Project means a possible new link for liquefied natural gas

By Beverley Tallon

TransCanada Corporation filed its proposed Merrick Mainline Pipeline Project for natural gas with the National Energy Board on June 4, 2014. A 260-kilometre-long extension of an already-existent natural gas pipeline, operated by wholly-owned TransCanada subsidiary, Nova Gas Transmission Ltd. (NGTL), Merrick Mainline will begin near Dawson Creek, B.C. and terminate near the community of Summit Lake, B.C.

If built, the new extended pipeline would link up to Chevron Canada Limited's planned Pacific Trail Pipeline (PTP) at Summit Lake. There the natural gas would be piped 480 kilometres west to the proposed Kitimat LNG Terminal at Bish Cove near Kitimat, where it would be converted into liquefied natural gas (LNG).

Originally envisioned as a 50-50 joint venture between Chevron Canada and Apache Canada, both the Kitimat LNG Terminal and PTP were dealt a blow on July 31, 2014, when Apache Corporation announced it was exiting the partnership. TransCanada was to provide natural gas through its extended NGTL system to the partnership's pipeline (PTP) under delivery contracts for a 20-year term.

As a result of Apache's action, Chevron Canada is now searching for a new partner. To date, it hasn't found one. "The entire Kitimat LNG project is an extremely complex undertaking with multiple moving parts that must all come together through hard work, patience and perseverance in order to be successful," says Gillian Robinson,

the spokesperson for Chevron Canada Limited, when asked about the project's future.

However, Robinson notes that the Pacific Trail Pipeline (PTP) has its environmental certificate, which is a significant achievement.

And despite Chevron Canada's current challenges, TransCanada's spokesperson, Davis Sheremata, says TransCanada plans to file a section 52 application, a certificate hearing as to whether the project is in the public interest, and must be applied for by anyone wanting to construct and operate a pipeline more than 40 kilometres long, with the National Energy Board regarding the Merrick Mainline in the fourth quarter of this year. However, he notes his company cannot comment or speculate on the future and will "need to examine the issue in greater detail once the Kitimat LNG project's ownership structure is resolved."

Pending regulatory approvals, Sheremata says TransCanada expects to start building the Merrick Pipeline in the third quarter of 2017. Construction should be completed and the pipeline in service by the beginning of 2020.

With an estimated cost of approximately \$1.9 billion, the 48-inch-diameter pipeline, with associated metering valves, is seen by many as a significant new link in British Columbia's emerging LNG export market.

A final route has not yet been determined. "In determining the route, we will consider a number of factors including safety, constructability,



environmental sensitivities, land use compatibility, economics, vegetation, archeological and historical sites, as well as stakeholder and aboriginal community input. To minimize the project's footprint, we will work to establish a pipeline route that follows existing right-of-ways and already established corridors," notes Sheremata. The proposed PTP with its eastern terminus at Summit Lake, will be approximately 480 kilometres long. It will travel through several regions in British Columbia, from the interior to the coast. The planned route will travel through the traditional territory of 16 First Nations. Fifteen of those have signed on to a benefit agreement as the First Nations Limited Partnership.

Due to the varied terrain, the PTP's route will involve crossing both water and mountain passes. Robinson adds, "Chevron's main goal is to construct the Pacific Trail Pipeline in a manner that above all, protects people and the environment."

She states that Chevron's Operational Excellence Management System has been developed over more than 20 years to support a culture of safety and environmental stewardship. Early work has begun on the proposed pipeline route, including right-of-way



clearing and construction on the western portion, as well as surveying and geotechnical work. Chevron has started its Biodiversity Monitoring and Assessment Program (BMAP), which will set pre-construction baselines and monitor biodiversity during and after construction. The work is being carried out by high-profile organizations including the Smithsonian Institute, the University of British Columbia and the marine research firm, Archipelago. When the natural gas travels through the PTP to the facility at Bish Cove, on land leased from the Haisla Nation, it is cooled to -160°C and stored in tanks before it is transferred to special LNG carriers for delivery to customers, likely in Asia.

The proposed Merrick Pipeline is expected to both strengthen the economy and provide economic benefits Canada-wide. Project-related initiatives such as job-training and community partnerships are also expected to help form strong, vibrant communities. TransCanada foresees numerous employment opportunities as a result of the pipeline. The project will generate jobs for equipment operators, welders, mechanics, truck drivers and labourers. It will also create a demand for local goods and services, such as gravel, construction equipment, lodging, and accommodations. Once operational, the project's annual contribution to

property taxes will help to support schools, hospitals, emergency services, and recreation that will strengthen communities.

Future production will exceed domestic requirements and even with the currently proposed pipelines, export demands will not be met. TransCanada is presently developing four major natural gas pipelines in the Merrick Mainline area, an investment totalling \$12.6 billion. The race as to who will be first to ship liquified natural gas to Asian buyers is ongoing. Projects in the United States, Australia, Malaysia and others form

formidable LNG players.

First shipments by Kitimat LNG would depend on a successful final investment decision (FID), which has not been finalized, adds Robinson. The necessary elements for this to happen would include "a clear competitive, and stable fiscal framework from the B.C. government, greater cost, and project execution certainty, additional First Nations' support, firm LNG sales agreements, and resolution of the project ownership structure, after Apache's recent announcement they will divest of their portion of the joint-venture." ●



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# PROVING SUSTAINABLE

## Geoscience BC's earth science helps northern British Columbia adapt to change

By Andrea Clifford



Some of the 2013 work included helicopter-supported lake sediment sampling, carried out by Tatla Lake's White Saddle Air Services Ltd.

Resource-based communities in north-central British Columbia have learned to survive the volatility of commodity cycles and related events by adapting to each change as it arrives. The last decade has witnessed the devastation of B.C.'s forestry industry through the mountain pine beetle epidemic and the collapse of the U.S. housing industry. After a remarkable run, the last two years have seen the mineral exploration sector, in British Columbia and globally, in a major slump because of falling commodity prices.

The mining industry will rebound. It always does. When that happens, B.C.-focused companies that adapted to survive the downturn will find that they are well positioned to take advantage of the recovery. There's a similar opportunity for resource-based northern

communities, thanks to a growing body of information about B.C.'s potential mineral wealth. Geoscience BC has continued to generate this publicly available earth-science information to help equip and prepare those companies, and those communities, for the rebound.

Geoscience BC was established in 2005 with a \$25 million investment from the Province to help strengthen the economy by stimulating and supporting responsible and sustainable mineral and oil and gas exploration, development and management. The industry-led, non-profit organization leads its own large-scale projects and funds individual research projects that meet its mandate to collect, interpret and deliver publicly available earth-science information.

Geoscience BC projects are guided

and vetted by volunteer technical advisory committees, or TACs. These include the minerals, oil and gas and geothermal TACs. The members on these committees represent a range of expertise in industry, academia and government, and each TAC's recommendations are presented to the Geoscience BC board of directors for final funding approval. To ensure that the outcomes of Geoscience BC's work are sustainable and the benefits universal, development of large-scale Geoscience BC projects also involve B.C. First Nations, communities, governments and industry, in addition to the TACs.

TREK, short for Targeting Resources through Exploration and Knowledge, is a \$4.1 million project developed by Geoscience BC to generate new information in an underexplored yet

highly prospective area for mineral resources. The 24,000-square-kilometre project area covers much of British Columbia's Interior Plateau, stretching south from Vanderhoof and Fraser Lake and west from Quesnel, and includes the well-known Blackwater gold district.

The TREK project began in 2013 with a 104,000-line-kilometre airborne magnetic survey, flown by Aeroquest Airborne Ltd., and the start of a regional geochemical survey by Noble Exploration Services Ltd. (Noble). Noble was formed in 2001 by Wayne Jackaman, who worked for the Geochemistry section of the BC Ministry of Energy and Mines Geological Survey Branch for over 15 years before becoming a private consultant.

Noble's crew returned to the field in summer 2014 to add 582 new till samples to the sampling conducted during its 2013 program. That program collected 684 new till and 264 new lake samples, plus reanalysed 1,393 archived till samples in the project area.



Vancouver-based Acme Analytical Laboratories Ltd. analysed the geochemical samples for major-, minor- and trace-element analyses, totalling 53 elements.

Field crews with the University of British Columbia's mineral deposit research unit (MDRU) were out for the first time in 2014 to begin the three-year TREK

geology and integration program. The 2014 geological mapping field program focused on the northern part of the project area to examine prominent features that showed up on the 2013 TREK airborne survey. Forest fires in 2014 prevented access to the west-central part of the field area.

"The work that Geoscience BC



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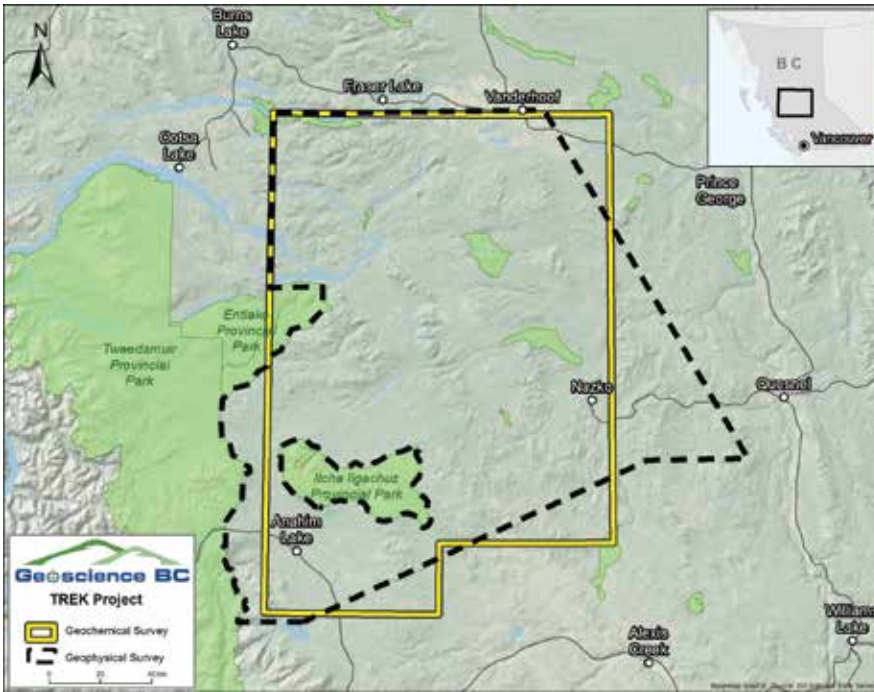
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is doing around the community of Vanderhoof is extremely important in our quest to become a vibrant place to call home,” says Vanderhoof Mayor Gerry Theissen. “We have always been

known for deep roots in the forestry and agriculture sectors, but if we are really going to build capacity, we need to have a strong mining industry. The only way we can attract investment in

this area is with the information that Geoscience BC is able to obtain through the TREK project.”

Geoscience BC’s capacity to develop this regional-scale information is a huge advantage for exploration companies in British Columbia because individual companies don’t have the resources to undertake this scale of study on their own. “Mining, like many endeavours, starts with a first step, and Geoscience BC has provided our project with an escalator,” says Peter Shorts, president of Decoors Mining Corp. “Geoscience BC has had many projects over the years and utilizing their vast data base, still today, can be one of the best tools in any prospector’s toolbox.”

Vancouver-based Independence Gold Corp.’s 3Ts property is located within the TREK project area, approximately 20 kilometres south of New Gold Inc.’s Blackwater gold project. Dave Pawliuk, Independence Gold’s vice-president of exploration, says, “The high-quality till geochemistry and airborne magnetic

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surveys produced by Geoscience BC's TREK project team have guided our recent staking in central B.C." The baseline information generated by Geoscience BC is still encouraging investment during the current economic slump.

When Geoscience BC first proposed the TREK project, the Nazko First Nation requested that geothermal research be included as part of the program, seeking alternatives for powering its remote off-grid communities that use propane and diesel. Geoscience BC conducted such research work in the summer of 2013, and the geothermal TAC recommended a second year of funding to support a followup program in the area, which is planned for summer 2015.

"We are excited about the information the TREK project will generate in our area," says Nazko First Nation Councillor Stuart Alec. "We believe that the TREK data will bring economic benefits and reveal the potential for renewable energy, which will enhance our social

and environmental conditions."

Geoscience BC initiated more than 10 new minerals projects in summer 2014 through a request for proposals (RFP) issued in May. Some of these projects include:

- A pilot project to define a standard for the collection and capture of historic exploration data through assessment reports;
- A new and improved interpretation of bedrock geology and structure under drift cover in the central QUEST project area (QUEST, short for QUesnellia Exploration STrategy, was Geoscience BC's first regional minerals program);
- A two-year research project to develop a new exploration tool to improve evaluation and exploration of British Columbia's porphyry systems, using QUEST and QUEST-South project data.

In addition to these RFP-generated projects, a new regional minerals project in north-central British Columbia is in development with Bruce Madu,

Geoscience BC's vice president of minerals and mining, and the minerals technical advisory committee. More information about this project will come in early 2015.

During the Minerals North conference in Vanderhoof in May 2014, B.C. Energy and Mines Minister Bill Bennett, announced \$3 million in interim funding for Geoscience BC, bringing the total provincial investment in the organization to \$51.7 million. This number does not include the nearly \$20 million that Geoscience BC has leveraged through its partnerships with industry, universities and community-based organizations like the Northern Development Initiative Trust.

The independent earth science delivered by Geoscience BC is unique to Canada and the world. Its rigorous and holistic approach to project generation, execution and delivery strives to keep much of the province's resource economy competitive, adaptive, and sustainable. ●

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# UP, DOWN AND ALL AROUND

## AuRico Gold focuses on Kemess Underground Project

By Melanie Franner



The Kemess South open-pit copper/gold mine in central British Columbia may have ceased operations in 2011, but AuRico Gold Inc. had no plans to decommission the existing infrastructure. The company is well aware that there is another significant deposit located nearby. And it is determined to mine it.

“The Kemess Underground Project is only six kilometres due north of the Kemess South mine,” explains Harold Bent, director of Environment for AuRico Gold. “In 2005, we did consider whether or not the deposit was viable as an underground mine, but the metal prices of the day did not support an underground concept. The metal prices did, however, support a large, open-pit concept. So we took it through the environmental review process as an open-pit mine from 2005 to 2007. It was ultimately declined.”

But the company wasn't to be deterred, and when gold prices started creeping up, so too did the hopes and aspirations.

“In 2010, when metal prices started

increasing, we went back to the drawing board and saw that it could be successfully viable as an underground mine,” says Bent. “So that's when we reconsidered underground mining and started the process to evaluate the optimal mining design for the deposit.”

### **SOUTHERN HOSPITALITY**

The Kemess South mine produced close to 3 million ounces of gold and over 700 million pounds of copper during its 13-year lifespan. It also left in place an existing infrastructure from which to operate the Kemess Underground Project.

“We have maintained all of the infrastructure over the last few years,” notes Bent. “Everything is still there – the administration building that houses offices, the nurse's station, the ambulance bay, warehouse and machine shop, as well as the mill concentrator. The basic concept is to convey the ore six kilometres from the underground mine back to the existing facility and re-use all of the infrastructure, including the existing

mill. We knew that this was always an option for us. That's why we kept up the maintenance on the infrastructure.”

Other existing infrastructure onsite includes a 300-man accommodation camp, raw ore stockpile areas, access and service roads, an airstrip, explosives depot, and the mined-out Kemess South pit. The latter is key infrastructure, as it will be used as a permanent depository for the Kemess Underground tailings and waste rock.

The Kemess Underground feasibility study outlines the development of an underground block cave operation that would produce an annual 105,000 ounces of gold and 44 million pounds of copper. Over a projected mine life of approximately 12 years, total production would be 1.3 million ounces of gold and 563 million pounds of copper – less than that produced by the Kemess South mine, but significant nonetheless.

### **GOING THROUGH THE PROCESS**

AuRico Gold completed the pre-feasibility and feasibility studies on the

## Proposed Kemess Underground Project



## Kemess Underground Cross Section Showing Decline, Underground Workings and Block Cave



Kemess Underground Project in 2012. They point to a potential mineralized zone located about 150 metres below the surface of mountainous terrain and extending down to at least 600 metres below the surface. The footprint of the ore body is approximately 540 metres long by up to 230 metres wide.

"We're now communicating information about the project to both the federal and provincial governments,"

explains Bent, who adds that this will ultimately determine the application information requirements (AIR) necessary to complete an environmental assessment (EA). In February 2014, the project was deemed "reviewable", following receipt of the Kemess Underground Project Description.

In April 2014, the federal government granted substitution of the EA to British

Columbia, as per the conditions of the memorandum of understanding between both levels of government, thereby acceding leadership on the project to the provincial government. AuRico Gold has initiated the EA process with the provincial government and is currently working on the AIR. The government will then review the AIR and invite public comment.

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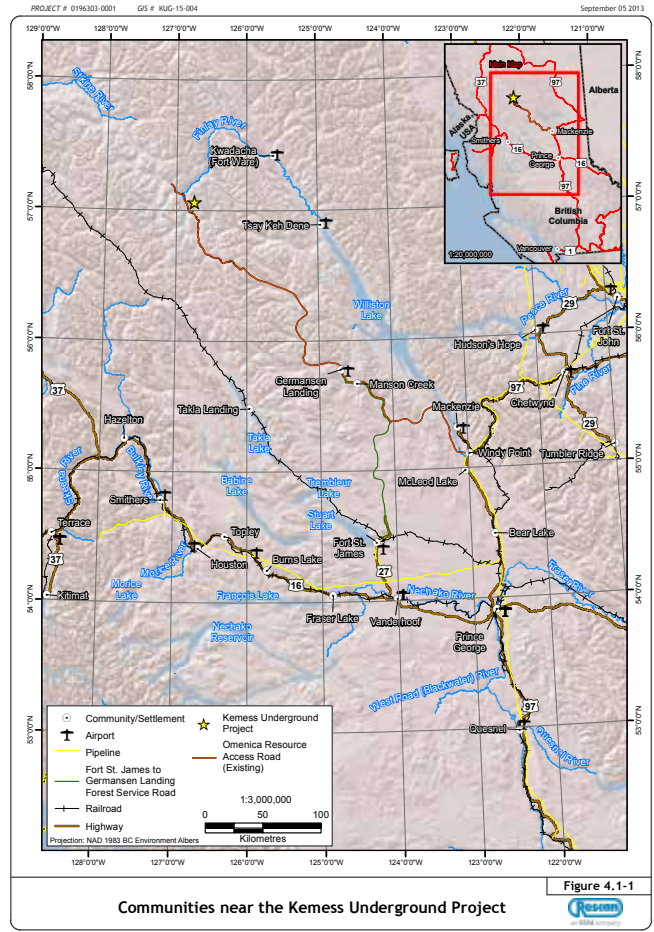
**Kemess Underground (KUG) has entered the environmental assessment process.**

5.5 km from past-producing Kemess South in north-central BC, KUG will use existing infrastructure, including the Kemess South open pit for tailings storage.

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**AuRico Gold** **KEMESS UNDERGROUND**



“We hope to finalize the AIR in the fall of 2014,” explains Bent. “Once the AIR is finalized, we will prepare and submit our EA application document, as per the required review process.”

### ABORIGINAL ENGAGEMENT

The Kemess South mine not only brings with it an existing infrastructure from which to operate the Kemess Underground Project, but also brings to the forefront

a long-standing relationship with the aboriginal community.

“There are three First Nation groups that have overlapping land claims in the area,” states Bent. “Our relationship with these groups goes back to 1996. In 2012, we signed an interim measures agreement (IMA) with the three nations that allows for opportunities and benefits to be mutually shared, such as to encourage involvement with the communities, employment opportunities for their people, contracts for business, etc.”

The IMA also included specific committees to ensure the objectives of the agreement were carried out and to provide a conduit for the exchange of information and to maintain communication.

Back in the day, the Kemess South mine operated on a fly-in/fly-out basis. According to Bent, most of the employees came from British Columbia, with 40 to 50 per cent coming from northern B.C.

"I expect that the Kemess Underground Project will operate in a similar fashion as Kemess South," states Bent, adding that he anticipates the project could create just under 400 jobs. "I think northern B.C. will be the beneficiary of this operation. The fly-in/fly-out arrangement will probably mean two weeks on and two weeks off, allowing workers to be able to live in their homes in their own communities during the off times."

**WAITING FOR THE GO-AHEAD**

Although AuRico Gold is now eagerly awaiting the finalization of the AIR, Bent is

optimistic about the future of the Kemess Underground Project.

"I believe the process can proceed in a timely manner and ultimately lead to project approval for us because of three factors," he says. "One, the mine proposes a small incremental change or disturbance of only 65 hectares. Two, we already have the existing infrastructure in place. And three, another huge advantage is that we will not need to find a new waste rock or tailings disposal area because both will fit into the empty Kemess South pit."

Another factor on the plus side for

AuRico Gold is the vast quantity of environmental data that the company has acquired over the years, thanks to the Kemess South operation. This data can now be used to support the company's current application.

And if the Kemess Underground Project gets underway – Bent suggests that the anticipated five years of construction could begin as early as 2016 – then who's to say that there aren't more Kemess findings in the future.

"We do have a package of mineral claims in the area that we do actively continue to explore," he concludes. ●



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# A PRINCE OF A DIFFERENT KIND

## The city of Prince George is vibrant and growing

By Jillian Mitchell



Britain's royal baby may have dominated Google searches, but a worthy contender of the same name is aptly making its way up the ranks.

The city of Prince George in northern B.C. (originally established as Fort George in 1807, in honour of King George III) is rapidly earning the reputation as the place to be. As the supply and service centre for the north, Prince George is the largest city in one of the fastest-growing regions in the country and is a "growing, vibrant city supported by a diverse and sustainable regional resource economy," according to Initiatives Prince George, the city's economic development corporation.

Heather Oland, CEO of Initiatives Prince George, reports the city of nearly 80,000 people is generally experiencing very good economic growth.

"Since 2010, Prince George has experienced 4.7 per cent growth annually, compared to the province of B.C.'s rate of 2.4 per cent – almost twice the rate," she says, noting the organization has a plan to further boost local business over the next few years with a business engagement program.

One of the main drivers behind the city's rapid growth is its booming mineral and resource industry, making it a preferred location for companies looking to establish or expand their operations.

For example, Thompson Creek Metals Company Inc., the company responsible for the Mt. Milligan copper/gold mine, 145 kilometres northwest of the city, spent \$125 million in 2012 in the north's supply chain – \$61 million of which was spent directly in Prince George.

Initiatives Prince George works on the community's behalf, proactively supporting industry, facilitating business expansion and growth, attracting investment, growing the population, and expanding the workforce.

Oland states over the last four years, the city of Prince George has experienced an employment growth of 14 per cent, overall. More specifically, in the forestry, mining, and oil and gas sectors, employment growth has been a whopping 39 per cent.

From 2007 to 2012, employment in Prince George's mining sector alone increased by an annual average of 31.5 per cent.

"That translates to 1,100 Prince George residents directly employed in mining and exploration during 2012; that's not supply



and service,” says Oland. “In northern B.C. as a whole, that number is 6,800 people.”

Between 2010-2013, Prince George’s construction sector has witnessed a 61 per cent employment increase, while the city’s manufacturing sector increased by 14 per cent. Wholesale and retail trade boasted a 21 per cent employment increase during the same time period, while the transportation and warehouse sector was up by 70 per cent. Professional services (engineering, legal, design, accounting) increased by 29 per cent.

“At the end of 2013, there were only 11 other cities in the country that had a lower unemployment rate than we did – that’s incredible,” says Oland, adding the average dual income was higher than in other areas of the province, resulting in more discretionary income. “Prince George’s unemployment rate hovers around five per cent, so that’s functionally fully employed.”

According to Oland, the appeal of Prince George is simple – one would “struggle to find another city on the continent (with a population just shy of 80,000) that boasts the kinds of amenities that Prince George does.”

“We have a full symphony orchestra, two professional performance theatres, fabulous downtown restaurants and great shopping opportunities,” she says.

“We have excellent health infrastructure [...] and we also boast very good educational infrastructure,” continues Oland. She cites the city’s

cancer-care centre, the Centre for the North, the University of Northern British Columbia, and the College of New Caledonia, as a few examples.

In February 2015, Prince George will host the Canada Winter Games, which coincides with the city’s 100th anniversary and which has resulted in countless dollars in upgrades to local infrastructure and recreational facilities. That includes a \$250,000 boost to downtown from Northern Development Initiative Trust to support enhanced façade improvements, branded signage, and public art.

“We are capable of hosting national sporting tournaments. All of our recreational facilities are absolutely top-notch facilities,” adds Oland. “We’re a full, urban, growing diversified city. At the

same time, 20 minutes in any direction, you can be deep in the Canadian woods.”

Oland reports that vacancy rates in Prince George are a little less than two per cent, and the city has witnessed a “good rise in housing starts.” For example, from 2010 to 2013, average annual housing starts are up by 9.3 per cent, while the average home price is up 2.5 per cent (to \$260,000). Add to that, home sales have increased by four per cent.

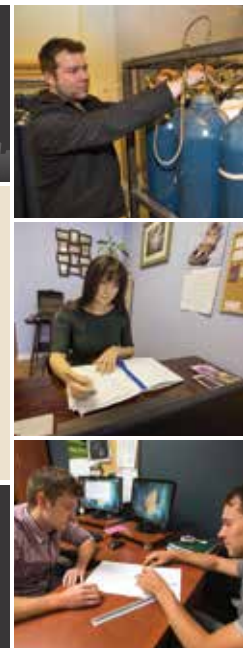
“When you bundle all those stats together, that’s a really good indication of growth,” says Oland. “There’s fabulous opportunities in the growing centres that are outside of the big urban centres in Canada.” ●

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# A SHINING EXAMPLE

## First Point Minerals' Decar deposit holds promise of new type of nickel-iron alloy

By Melanie Franner



The price of nickel is robust and is expected to stay the course for some time to come. That's good news for First Point Minerals Corp. (First Point), whose 40 per cent-owned Decar mineral deposit

in central British Columbia (approximately 90 kilometres northwest of Fort St. James) shows healthy evidence of a new source of nickel via a natural nickel-iron alloy called awaruite.

"It's a naturally occurring stainless steel mineral that the market has never seen before," explains Ron Britten, vice-president of Exploration, First Point, who adds the current supply situation points to a worldwide shortage of nickel within the next decade or two. "Our Decar deposit is a very benign type with a very low sulphur content compared to traditional sulfide concentrate deposits, thus reducing many of the ongoing environmental concerns associated with sulphur."

The highly magnetic and very dense characteristics of the nickel-iron alloy also translates into low-cost mechanical processing that will include magnetic and gravity separation, with no floatation necessary – and the very low sulphur content will not cause any acid-mine drainage and avoid significant smelter costs associated with nickel-sulphide concentrates. The nickel-iron product can likely be sold directly to steel mills or ferro-nickel plants.

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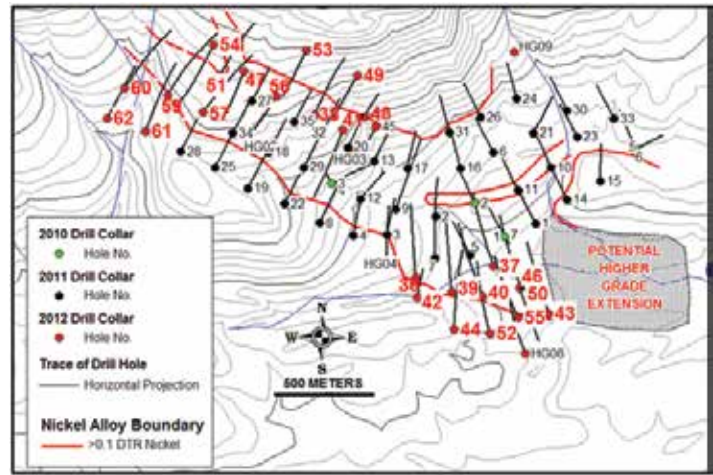
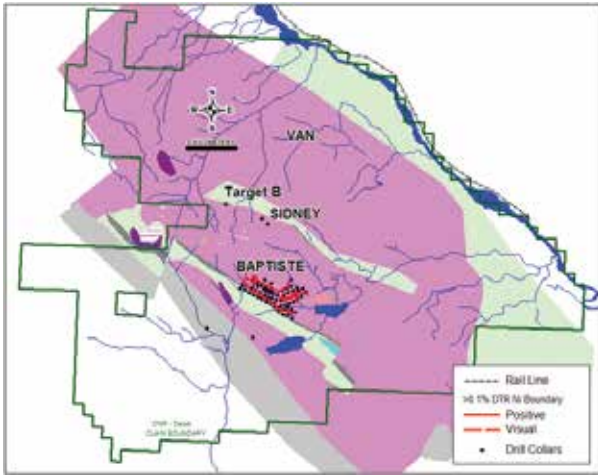
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### DEEP DEPOSIT

First Point initially optioned a portion of the roughly 24,345.9 hectare Decar property back in 1996 but dropped the option in 1997 because the \$3.50/lb. price of nickel at the time indicated mining wouldn't be economically feasible. In 2008, when nickel prices reached upwards of \$20/lb., the company revisited the idea and staked several ultramafic belts, including the

Decar property. First Point identified several potential drill targets in 2008 and 2009 and began looking for partners to help fund future activities.

The company found a partner in 2009 when Cliffs Natural Resources Inc. (Cliffs) came on board. Cliffs funded a 10-hole drill program in 2010 on two targets within the Decar property: the Baptiste and Sidney Targets. Cliffs executed two major drill programs in 2011 and

2012, and by the spring of 2013 had calculated a geological resource at the Baptiste deposit and completed a preliminary economic analysis (PEA).

The results they found were promising. The Baptiste deposit alone shows the potential of just under one billion tonnes of mineable material (925 million tonnes at 0.118 per cent of magnetically recovered nickel and includes eight per cent dilution). Two other targets have

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already been identified in addition to the Baptiste deposit and Sidney Target with the potential for more mineralization.

"The other targets only have one or two drill holes at this point," states Britten. "And beyond that, there are many other locations in the general area where there isn't much exposure. There is a significant potential for more mineralization to be found."

For now, however, work will focus on the Baptiste deposit, which currently measures more than 2,400 metres long by 490 metres to 900 metres wide. The Sidney Target measures 500 by 400 metres and is located two kilometres north from the Baptiste Target.

"The PEA, completed in the spring of 2013, indicates a post-tax internal rate

of return (IRR) of 12.8 per cent, based on a conventional, open-pit mining rate of 114,000 tonnes/day, over 24 years," says Britten. "That equates to a payback period of 6.4 years. But we believe that these numbers can be substantially improved by drilling off higher-grade zones in identified target areas, which could reduce the payback period and add significant tonnage, while also reducing the dilution factor."

Projections suggest that the mine will produce a 13.5 to 16 per cent nickel concentrate, with an iron (45 to 50 per cent) byproduct.

#### **WANTED: NEW PARTNER**

The partnership with Cliffs has proved advantageous to both firms, with Cliffs

funding the exploration and metallurgical testing work that has been completed over the last few years in exchange for an increasing share of the joint-venture partnership. All was going well until summer 2014, when changes at Cliffs' board of directors and management resulted in a new direction for the company.

"Cliffs is consequently in the process of divesting all of their properties and operations outside of the U.S., including the Decar property," explains Britten, who adds that the pre-feasibility study now has to wait until a new partner comes on board.

Cliffs currently owns 60 per cent of the Decar joint-venture partnership with First Point.

"We've got some feelers out there and are cautiously optimistic," notes Britten. "We hope to have a new partner on board within a year, if not before then."

On the plus side to a new partner is a promising awaruite deposit that would deliver a new, long-life, low-risk source of

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**VICKI PODGORENKO**

nickel for world markets. On the negative side is the fact that awaruite is a new product without a proven track record. Plus, the industry is in a bit of a downturn.

But Britten doesn't see either factor as having too much of a detrimental effect on the Decar property's future.

"Our product could be a more reliable long-term source compared to sources located in less politically stable countries, such as the Philippines or Indonesia, [where] the latter has currently banned the export of their laterite ore," he says.

Regardless, the Decar property will remain at the forefront of First Point activities in the near term, along with an initial drill program on the nickel-iron alloy Mich property in the Yukon.

The estimated capital cost to make the project operational is around \$1.3 billion. Once a new partner is onboard, construction could start in as little as four years. And results from two-year environmental base line studies (including water and wildlife) show that there are no environmental aspects considered to be limiting to the project development.

"Decar is First Point's flagship property at the moment and is our most advanced property," states Britten. "It will continue to get our full attention. Our goals at this point are to engage another partner as soon as possible, advance the pre-feasibility study forward



and then complete a bankable feasibility study to eventually lead to a production decision."

### **PROMISING POTENTIAL**

And if that bankable feasibility study leads to a go-ahead decision, Britten suggests the economic impact on the community could be significant.

"The development of the Decar project could have a major economic impact for a very long time and it will involve not just the aboriginal community, but also the local communities," he says, adding that First Point has been engaged with First Nations communities – specifically the Tl'azt'en Nation and Middle River Band – since it first started exploration on the property and that engagement

continues to this day. Both are interested in seeing the project go forward.

Britten also adds the number of direct and indirect jobs created by a mine would likely be on the same scale as that of Highland Valley, a porphyry copper-molybdenum, open-pit mine that currently employs approximately 1,300 people.

With a new, naturally occurring nickel-iron alloy waiting in the wings – one that would help satisfy a dwindling global supply – First Point is confident of having a new partner on board for the Decar property in the near future – one that can help bring the commercialization of this new metal to fruition and may well change the stainless steel industry as we know it. ●



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# REGION ON THE RISE

## Resource-based industries are key component of northeast B.C.'s economic powerhouse

By Tim Banman

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Forestry. Wind power. Oil and gas. Tourism. Mining and exploration. The northeast is poised to reap the benefits of careful planning and sustainable development of the region's resources. In recent months and years, community leaders have set the wheels in motion to identify the key needs for growing into the future, as well as create a roadmap

for working with industry and government to get there.

The value of the northeast to the provincial economy is undeniable. North Peace Economic Development Commission (NPEDC) recently commissioned a study that showed the average contribution to exports per labour force participant in British

Columbia is \$33,708. In the northeast, it's over \$182,000. While representing only two per cent of the population, the region now accounts for nine per cent of interprovincial and international exports – a fact that has local leaders bracing for exponential growth in the years ahead.

While the low price of metallurgical

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coal may slow down some mining projects, the rise of liquefied natural gas (LNG) has kept the region's economic wheels turning. The B.C. government's push for LNG development and finding new overseas markets has been a boon for the North Peace region.

Meanwhile, the mining industry is hoping to tap coal-mining potential near the District of Hudson's Hope, with 10 applications and permits from four companies under review. If these

projects go forward, 4,000 workers would be required, while the expected population growth would add 15,000. The NPEDC estimates the region will add 24,000 jobs in oil and gas, including LNG, by 2021. It also projects the service population for the North Peace region will more than double from 64,000 to 140,000.

Another indicator is air-passenger traffic. The North Peace Regional Airport, based in Fort St. John, has taken off

since the arrival of a third carrier in 2013 and the introduction of direct flights to Calgary, where much of the resource industry is headquartered. Airport officials estimates the airport will see 240,000 passengers for 2014, mostly from industry but also from increased personal use, following year-over-year increases measured around 60 per cent.

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hectares, the Peace River Regional District benefits from encompassing the northern-most agricultural land in Canada, as well as containing plentiful natural resources. Home to around 70,000 British Columbians, the district's recent growth spurt places it in a unique position provincially as an economic



powerhouse – with a corresponding need for rapid infrastructure development to accommodate industrial growth.

“As many

opportunities as all this growth brings, there are also challenges in terms of the impacts on housing, health care, and other areas,” says Chris Cvik, CAO for the district. Municipalities within the district face social and infrastructure pressures associated with the fast-growing resource economy and its shadow population of temporary workers. The region's hospitals are busy to begin with, so the health system needs an accompanying increase in health services to meet increased demand, says Cvik.

Industrial activity also puts local roads to the test, as rural roads were not designed for the large equipment they

now accommodate. Between Fort St. John and Dawson Creek, local leaders want to see Highway 97 twinned.

“Our highways and roads in the northeast are incredibly busy and have the highest rate of truck traffic of any highway in the province,” notes Jennifer Moore, regional economic development officer for NPEDC. “The resources aren't worth anything if you can't get them to market.”

### DAWSON CREEK

Many people working in mining live in the city of Dawson Creek, giving a boost to the business community as it acts as a major service centre for the mining industry. The community is well positioned on major rail and road routes, making it a hub for commuters and trade. Residents are also excited with the mining proposals that are being put forward, especially with the promise of ongoing economic spinoff benefits.

“The prevalence of the resources and opportunities that are being developed in both the natural gas and mining sector are transformational,” says Dawson Creek Mayor Dale Bumstead. The biggest challenge the city faces is developing the capacity to achieve economic opportunities as they arise and finding the people to develop the infrastructure and operations required, Bumstead notes.

To remedy the situation, Dawson Creek actively promotes trades training



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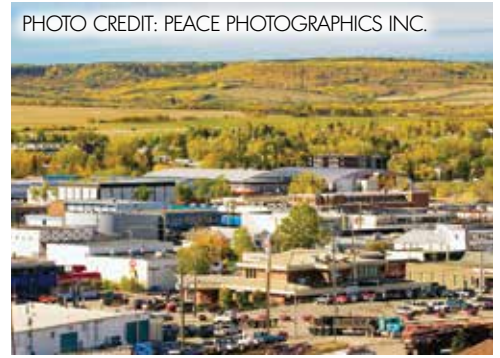
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with post-secondary institutes in the region. Finding the truck drivers, power engineers, and electricians needed to sustain growth – “that’s going to be the big issue for us as all these proponents come forward with mining and natural gas,” Bumstead says.

**FORT ST. JOHN**

The bustling city of Fort St. John benefits from its location adjacent to mining, exploration, forestry, agriculture, wind power and tourism. The city recently received provincial approval to extend

its boundary, adding 11 parcels of land, which will help accommodate growth.

Mayor Lori Ackerman says she appreciates getting to know the proponents in long-term industries and being able to work together for the benefit of the region, as well as to support the fulfillment of corporate social responsibilities.

“They understand that it is a desire of ours to build sustainable communities,” says Ackerman. To accommodate a growing population, city council is working on a master recreation plan.

Council will assess current recreational assets, identify needs, and put forward a plan to ensure recreational opportunities do not lag behind.

“Communities need a solid foundation of appropriate health, education and safety to ensure that we retain the ability to be an attractive community to recruit to,” explains Ackerman. “We have an opportunity to really help young people or skilled professionals either kick start or restart their careers. We’re definitely a place to check out.”

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## TUMBLER RIDGE

At the centre of coal mining in the northeast, Tumbler Ridge has faced some adversity with news that Anglo American PLC put its Peace River Coal mine under care and maintenance due to sagging commodity prices in September 2014. The news followed two preceding care and maintenance decisions, one at Quintette and the other near Chetwynd. While the curtailment is not great news for Tumbler Ridge, Tumbler Ridge Mayor Darwin Wren remains confident that with the resource in the ground and exploration continuing, mining and the economic benefits it brings will be back up and running with the return of commodity prices.

“With the low commodity price of coal, the extraction has been curtailed, but the exploration continues, as it has the last number of years,” says Wren. Being a resource community with a fluctuating



population makes it difficult to plan, Wren says. However, Tumbler Ridge has taken a forward-thinking approach to its economic future and is developing a sustainability plan, with assistance from the Community Development Institute of B.C. The sustainability plan will consider all aspects of community development, including infrastructure, population, housing, and social impacts.

Tumbler Ridge has diversified its economy to be able to thrive in these kinds of times with the support of wind power, oil and gas, forestry and more recently tourism, making the municipality prepared to deal with the ups and downs of commodity prices, he says. Tourism in Tumbler Ridge has grown in recent years with the discovery of dinosaur fossils in the area. And, on September 22, 2014, the district’s tourism aspirations took a giant leap forward when it was designated a UNESCO Geopark at the sixth international

UNESCO Conference on Global Geoparks, at Stonehammer Geopark in New Brunswick. Tumbler Ridge now becomes only the second Geopark in North America.

“It’s an exciting time for Tumbler Ridge in the larger picture,” says Wren. “Certainly with the mining closure, it will put some short-term strain on the community. But Tumbler Ridge is only going to grow, it’s only going to expand. It experiences some ups and downs along the road, but we’re well-positioned with wind power, expanding oil and gas, tourism – and of course that coal resource is still in the ground. And as long as there’s a demand to make steel, we’re well-positioned.”

## NORTHEAST BRITISH COLUMBIA RESOURCE MUNICIPALITIES COALITION

Recently, northeast community leaders announced plans to take regional planning to a new level with the creation of the Northeast British Columbia Resource Municipalities Coalition. Partners include Dawson Creek, Pouce Coupe, Taylor, Tumbler Ridge, District of Chetwynd, Fort St. John, and Fort Nelson Northern Rockies Regional Municipality. Infrastructure challenges motivated the coalition to lead a conversation with the Province on how to address growth in the economically important northeast. The coalition will also focus on improving the quality of life for residents, regional resident recruitment, as well as opportunities for the arts.

“We feel that the synergies created by a single voice represented by the communities can more effectively plan for the infrastructure needs of the future,” says Bumstead.

Ackerman adds, “Given the scale of projected industrial activity and associated growth, it is essential that we go to the table with industry, the provincial government, and First Nations to engage in ongoing and coordinated planning to ensure that the services and infrastructure in the resource communities are solid.” ●

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# PROSPECTING FUTURE

## Promising times for Ootsa Property as drilling results look good

By Melanie Franner



These may be tough times for junior mining companies looking for investors, but Gold Reach Resources Ltd. may have an ace in the hole with its Ootsa Property, located 120 kilometres south of Houston, B.C.

Acquired in 2004, via an option agreement with another company, Gold Reach has since consolidated the Ootsa Claim and additional areas have been staked – to the point where the current property covers an area approximately

70,000 hectares in size.

“Most of our growth has been since 2011, when we really ramped up exploration activities,” explains Shane Ebert, president and director of Gold Reach. “At the time we acquired Ootsa,

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it was a small property with some known deposits. We're drilling in the areas of the known deposits, as well as doing some additional surface-mining exploration activities in new areas. And we keep getting good results."

One of the reasons behind these positive results could have something to do with the fact that the Ootsa Project is

located close to the Huckleberry Mine, an open-pit copper/molybdenum mine that became operational in 1997 and is on track to produce 36 million pounds of copper, 2,900 ounces of gold, and 175,000 ounces of silver in 2014.

**RECENT ACTIVITIES**

Gold Reach ramped up its drilling

program significantly over the last few years. It has also acquired additional stakes over the period, the most recent being the Hope Prospect, a 383-hectare-sized area that was intermittently explored from 1982 to 1990.

Historic exploration consisted of sampling, mapping, trenching, and

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geophysical surveys, with the results delineating a sulphide-bearing alteration zone that is 40 to 50 metres wide and more than 700 metres long. The zone carries significant gold, silver, and base metals.

Although Gold Reach has yet to do any drilling in the Hope Prospect, it has completed work in other areas of the Ootsa Property. In fact, the company has completed close to 135,000 metres of core drilling on the property to date, with

36,000 metres completed during 2013 alone.

“Only recently have we discovered how big this system can be,” says Ebert. “This is our fourth year of very intense drilling and it has shown us that there may be something of very significant interest here.”

The Ootsa Property holds the promise of copper, gold, molybdenum, and silver.

“Our published resource estimates show that we have over 1.6 billion

pounds of copper and over 1.5 million ounces of gold in pit-constrained resources,” states Ebert. “In total, we have over 2.9 billion pounds of copper equivalent.”

To date, Gold Reach has identified several specific areas for immediate attention. Advanced-stage exploration has taken place on the East Seel, West Seel, and Ox porphyry deposits.

Work this year has focused on optimizing the economic potential of the project and testing all of the main exploration targets surrounding the known resources ahead of a potential preliminary economic assessment. The drilling program will include a minimum of 7,500 metres of core drilling, an induced polarization geophysical survey, a substantial surface exploration program, and various engineering, metallurgical, and environmental test work.

Drilling has initially started on the West Seel deposit and has focused on testing the depth extent of known higher-grade trends defined during previous drill programs, as well as delineating the extent of the deposit that still remains open to the north and south.

“We want to find the edges of the deposit,” says Ebert. “That will help us with the economic modelling.”



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Another goal on the list for company accomplishments this year is to investigate the silver veins more thoroughly.

"We have a bunch of high-grade silver veins that we want to see the size of," adds Ebert. "They are located a few kilometres east of the Seel deposit. We're hoping to test three or four drill targets in this area [in 2014]."

A skid-mounted drill rig is being used for the core drilling in the West Seel deposit, while a second highly portable track-mounted drill may be used to test the numerous targets outside of the known resource area, including both large porphyry targets and the high-grade silver base metal vein targets.

And all the while, surface exploration activities will continue to advance known targets and to generate new ones.

#### NEXT STEPS

Once delineating on the Seel deposit is complete, says Ebert, the company can start the economic

modelling studies. This, in turn, will help the company make a decision about whether mining will be feasible in the long run.

If it's a green light, the process from decision-making to actual construction might be a bit easier than usual because of the property's close proximity to the existing Huckleberry Mine.

"We might be seeing some construction activities within as little as two to four years of getting the go-ahead decision," says Ebert.

And although it may be too early to determine what exactly will be on the books for the Ootsa Property in 2015, one can assume the hard work will continue.

"We've been making good discoveries every year," says Ebert. "Yes, we have to wait to see what happens in the remainder of this year, but we definitely want to keep pushing forward toward the preliminary economic study and from there to the pre-feasibility stage."

#### A SMOOTH TRANSITION

Despite being a good many years off from being operational – if the Ootsa Property reaches that stage – Gold Reach's team remains excited about the results of its ongoing activities. And already, these results are generating some much-needed attention.

"We have a lot of companies that have expressed interest in this project," states Ebert. "Our results to date have been very positive."

This is good news for the people at Gold Reach, as well as for the Ootsa Project area itself. The Huckleberry Mine is projected to have enough resources to remain operational until 2021.

"Ideally, we would be the perfect candidate to take its place," says Ebert. "We would be able to move the workforce over here, which would be good for the local communities and for the First Nations people." ●

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# PULLING INTO PORT

## Port of Prince Rupert a leader in the global economy

By Jillian Mitchell



The Port of Prince Rupert, with its significant competitive advantages, is positioning British Columbia for the future – and then some.

Strategically located in a sheltered, ice-free harbour along the Great Circle Route, the northern B.C. port serves as the North American entry point to the North West Transportation Corridor and is the shortest land/sea route to the U.S.

midwest and the shortest sea route to the Asian markets (by up to three days).

Boasting one of North America's deepest natural harbours and the continent's deepest inner-harbour entrance (channel depth of 35 metres, terminal berth depths of 17 metres), the port has the capability to handle large vessels without significant navigational hazards.

"All of the attributes really convert into an advantage in how the port provides market access for B.C. and Western Canada's key export sectors," says Shaun Stevenson, vice-president of trade development and public affairs, Prince Rupert Port Authority. "It really represents our advantages as a port because of the attributes that underpin our [geography]. Taking days off the sailing



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time to key markets in Asia represents a fundamental advantage for Canadian industries looking to serve those markets.”

The nation’s second-largest West Coast port includes three modern, high-throughput bulk and container terminals and two first-class cruise facilities, all of which have the capacity to increase

volumes and/or expand operations.

On Ridley Island, the Prince Rupert Grain Ltd. terminal, which has a footprint of 19.564 hectares, specializes in exporting agricultural products from Western Canada, while the neighbouring 55-hectare Ridley Terminals Inc. facility handles the

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region's metallurgical and thermal coal, petroleum coke, and wood pellet (bio fuel) exports. Over on the mainland, the 24-hectare Fairview Container Terminal is the first dedicated intermodal (ship to rail/ rail to ship) container terminal in North America and handles exports of forest products, mineral concentrates, and agricultural products, as well as imports from Asia. In total, the terminals handle approximately 25 million tonnes of cargo annually.

Rounding out the port's lineup, Cow Bay's Northland Cruise Terminal facility and Atlin Cruise Terminal offer berthing

services to the Port of Prince Rupert's many explorer-class cruise ships and large yachts (Northland the larger vessels, Atlin the smaller). The Atlin site also includes the Port Interpretive Centre, a souvenir shop and art gallery that opened in 2012.

"We've been in the container business for about seven years," says Stevenson. "And over that time, we've been the – or among the fastest-growing container ports in North America. We're in the top five in Canada, overall, in tonnage."

Expansions of container, bulk, and other cargo-related facilities are regular

occurrences at the port, thanks to the surrounding 400-plus hectares of prime industrial development-ready land. For example, Ridley Terminals' \$200-million, four-year expansion project, is anticipated to wrap by year's end. The container terminal is also scheduled to undergo a \$650-million expansion that, when completed in 2015, will make it the second-largest handling facility on the West Coast.

Upon its 2014 completion, a new \$90-million road, rail, and utility corridor project on Ridley Island will further support new terminal developments and improve Canada's trade capacity and exports to Asia-Pacific markets.

In addition, the Breakbulk Cargo Facility (otherwise known as Project Cargo) should be completed in late 2014.

In accordance with the authority's Gateway 20/20 plan, feasibility studies are currently underway for four new terminals, including two LNG (liquefied natural gas) projects and a potential potash terminal within the port's properties.

"[These four terminals] really contribute to over \$25 billion of potential capital expansion in Prince Rupert over the next few years," says Stevenson, adding that the authority is also looking to develop new capacities for project cargo and bulk within the forest sector and mining sector. "As we see new prospective mines in northern B.C. coming on stream, we're looking at developing capacities to serve project cargo that may be required to build those facilities, but also create capacities to handle exports of



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Colorado's current exploration focus is to continue to advance its North ROK Property, located 15 km's northwest of the Red Chris mine development, and its KSP property optioned from SnipGold, located 15 km's along strike to the southeast of the past producing Snip Mine, both located in north central British Columbia.



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new production of mineral concentrates.”

All told, the Port of Prince Rupert’s economic outlook is impressive, with total direct impacts of ongoing operations at the port poised to generate 2,220 direct person years of employment, totalling \$130 million in wages. A gross domestic product of over \$290 million and an economic output of approximately \$550 million have been forecasted. The port also contributes \$35 million in taxes to

the government for public services.

For Stevenson, these numbers offer much to be proud of. “You often think of ports as a part of the transportation sector, but really we’re trade gateways. The Port of Prince Rupert is as much the Port of Prince George, or the Port of Grande Prairie, the Port of Dawson Creek, and the Port of Terrace, because really it serves the export industries that underpin those economies,” he says.

“We’re very much focused on northern B.C. and the Northern Corridor and what the port represents for market access.” ●

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# THE PROMISE OF MORE TO COME

## Red Chris Mine is more than meets the eye

By Melanie Franner



Commercial operations at Imperial Metals Corporation's Red Chris Mine are anticipated to begin before year end 2014. The open-pit copper, gold, and silver mine, which is located 80 kilometres south of Dease Lake in Tahltan traditional territory in northwest British Columbia, received its Mines Act permit back in May 2012. The permit, however, is for a deposit that was already "sketched out" at the time Imperial Metals succeeded with its takeover bid of bcMetals in 2007. A lot has changed since then – and all for the better.

"When we acquired the Red Chris

Mine, it was considered to be a conventional, medium-sized porphyry mine with a relatively low-grade deposit," explains Steve Robertson, vice-president, Corporate Affairs, Imperial Metals. "At the time, there was no power line to the site so we decided to turn our attention to exploration while we waited for BC Hydro to complete the transmission line. Prior to the acquisition, we had recognized that the deposit had all of the hallmark features of a potentially much larger, high-grade deposit."

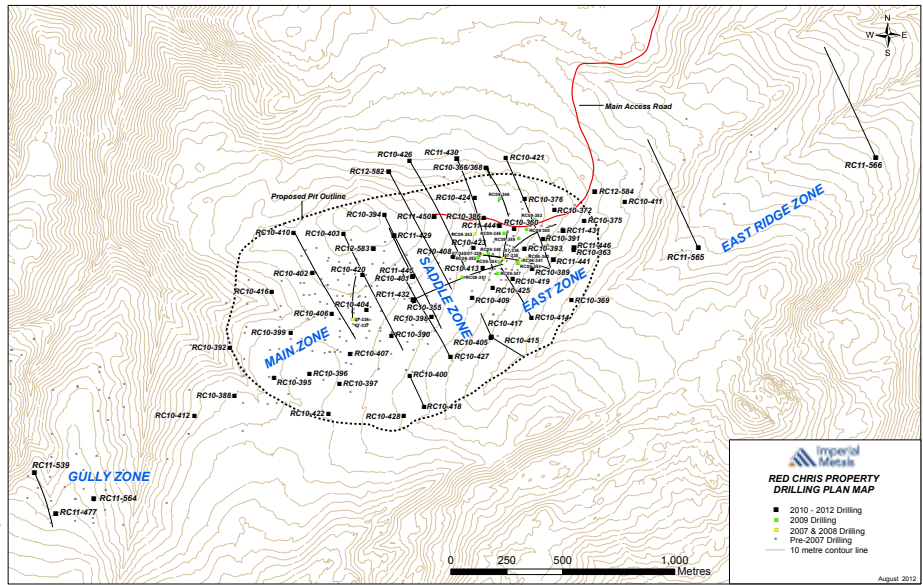
The company embarked on an aggressive drilling program, completing

six holes that season, and returned great lengths of high-end mineralization. Imperial Metals focused on building a road into the property in 2008, and then went right back to drilling. During 2007, through to the spring of 2012, Imperial Metals drilled more than 125,000 metres.

"What appeared to be a medium-sized, low-grade deposit was just the upper crust of the more significant deposit," states Robertson. "We stopped drilling in 2012 because we got our Mines Act permit, not because we had completed the delineation."

### **MOVING AHEAD**

Rather than go back to the drawing board and go through the environmental assessment and review period again, Imperial Metals opted to stay with the original submission and focus on the Red Chris Mine that was



already identified prior to the corporate takeover.

Numbers from the 2012 updated Red Chris Report suggest reserves of 301.5 million tonnes grading 0.359 per cent copper and .274 g/t gold for a 28-year project life at a milling rate of 30,000 tonnes a day. Commissioning is expected

to be completed prior to the end of 2014. Recovered metal concentrate is expected to total 2.08 billion pounds of copper and 1.224 million ounces of gold over the mine life. There are also 44.61 million ounces of silver in the Measured and Indicated category and 4704 million ounces of silver in the inferred category.

As of September 2014, on-site construction at the Red Chris Mine was almost complete, as were the tailings and reclaim water systems. Mining operations have already begun, with the first excavation of ore-grade material being stockpiled for commencement of the milling operations.



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Despite a couple of delays, BC Hydro's 287-kV Northwest Transmission Line from the Skeena substation to Bob Quinn is also complete. And the 93-kilometre Iskut extension from Bob Quinn to Tatogga – which was necessary to power operations at the Red Chris Mine – is not too far behind.

According to Robertson, there were over 1,000 construction jobs (mine operations and transmission line operations) during peak times. Once commercial operations begin there will be approximately 280 full-time jobs, which Robertson anticipates will slowly grow.

"One of the reasons that we acquired the Red Chris property was because

of all the advantages that it offers in addition to the actual deposit," explains Robertson. "One, it is logistically sound in that it offers easy access to a two-lane, paved highway. Two, it's a one-way 230-kilometre trip to port. Three, a new power line now runs right by the front door. Four, precipitation is very low in this region. And five, the topography is relatively benign. All of these things lend themselves to relatively low capital and operational costs."

Because of this Imperial Metals estimates the project payback will take place in as little as 4.58 years under baseline economic assumptions used in its upgraded 2012 *Red Chris Report*. "On top of that," adds Robertson,

"there will be good-quality, high-grade ore right from the beginning of operations."

### THE MOUNT POLLEY EFFECT

The breach of the tailings dam at Imperial Metals' Mount Polley Mine, which took place on August 4, 2014, has had an unfortunate effect on what would otherwise be an exciting time in the company's history. Imperial Metals has estimated the size of the spill at 10.6 million cubic metres of supernatant water (the liquid that lies above a sediment or precipitate), 6.5 million cubic metres of interstitial water (water that occurs naturally within the pores of rock), and 7.3 million cubic metres of tailings.

"The Mount Polley incident has caused a ripple effect that has been felt throughout the company and the industry," says Robertson. "It is proving to be a significant event that may well change the ways things are done going forward."

Already, Imperial Metals has entered into an agreement with the Tahltan Central Council (TCC), the Aboriginal "partner" in the Red Chris mining project, the focal point of which is a review of the Red Chris tailings impoundment to confirm that world-class standards have been incorporated in its design, engineering, construction, and operation. The review will be conducted by an independent third-party engineering firm and is expected to be completed by the end of September 2014.

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“We have developed a solid relationship with the TCC and they have expressed great interest in seeing this project succeed,” states Robertson, who adds that 20 per cent of the people employed at the Red Chris Mine operation are from the TCC – and that number is expected to increase as Imperial Metals continues to invest in training.

**THE NUMBERS HAVE IT**

The Red Chris Mine property currently covers 29,482 hectares and is comprised of five 30-year mining leases covering 5,141 hectares and 83 mineral claims encompassing 24,341 hectares – all of which is 100 per cent owned by Red Chris Development Company Ltd.

That leaves a lot of room for additional exploration and for potentially more significant deposits.

“We will probably get the cash flow started on this mine before we go back to serious exploration,” notes Robertson, who adds that the remaining deposit not covered in the Red Chris Mines Act permit is estimated to be at least five times the size of this one. “The initial deposit outlined in the mine permit is going to be a good one, without a doubt. But there is definitely more to come.” ●

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# BETTING ON A GOOD THING

## Years of experience pan out for Pretivm Resources Inc.

By Melanie Franner



When Bob Quartermain, president of Pretivm Resources Inc., put in motion his plan to purchase the Brucejack and Snowfield Projects from Silver Standard Resources Inc., he did so based on a

belief that can come only from years of experience. In his case, it was 40 years and counting.

"We acquired the Snowfield and Brucejack Projects in December 2010,

after we closed an initial public offering (IPO) to raise \$263 million – the third-largest IPO in Canada in 2010," explains Quartermain. "Snowfield is a larger, lower-grade mineral system. Our main focus has always been the Brucejack Project. When we acquired the project, it was at the drill stage – some 100-odd holes had been drilled. It showed a predominantly low-grade system with intermittent high-grade gold seams. That's what peaked my initial interest – these high-grade gold seams."

Four years later, that belief has panned out and Pretivm is in the midst of capitalizing on a significant reserve of high-grade gold via a proposed underground mine that stands out when compared to similar underground gold operations within Canada.

### **GOOD, BETTER, BEST**

The Brucejack Project accounts for about 103,000 hectares of a largely unexplored package of land

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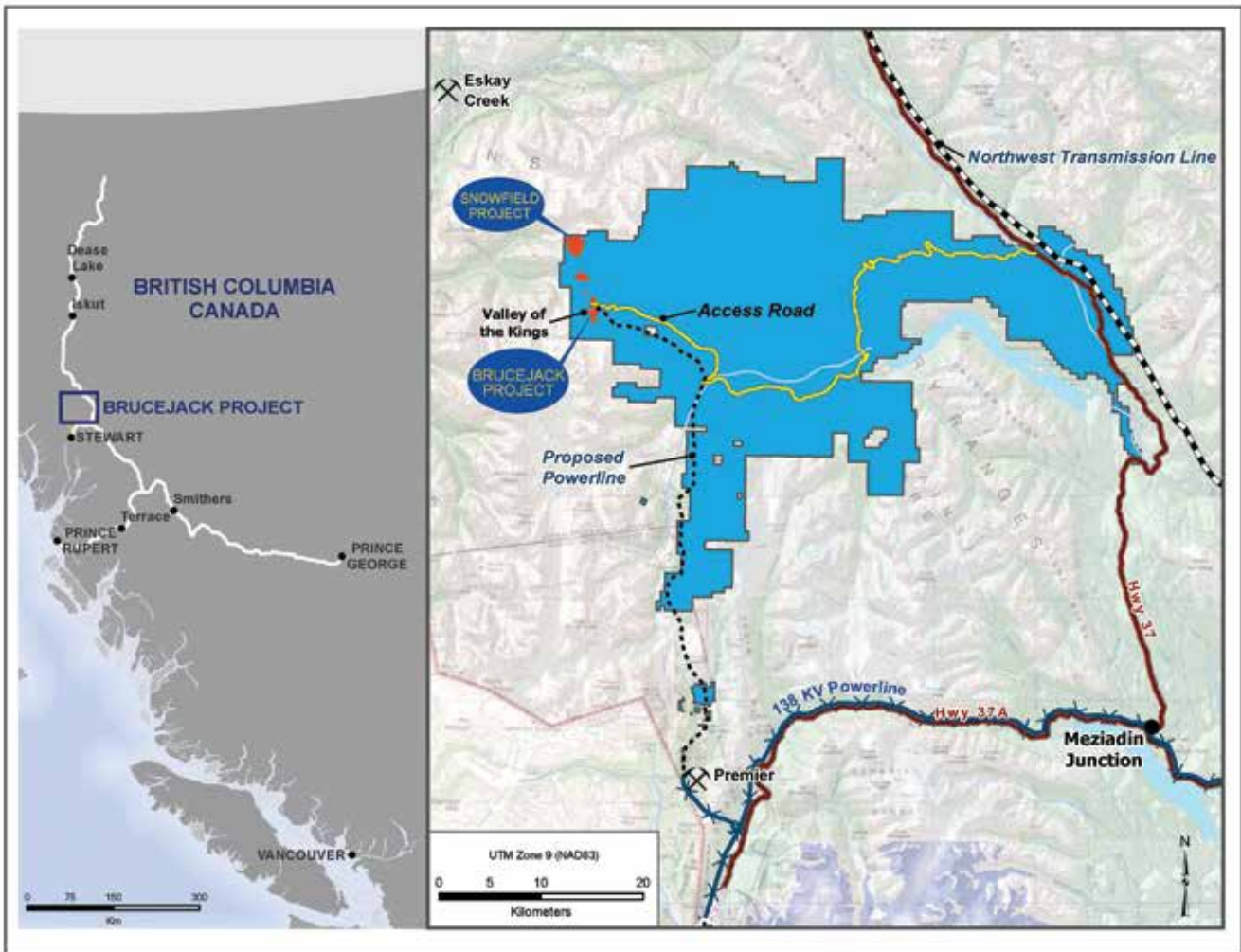
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approximately 65 kilometres north of Stewart in northwestern British Columbia. The main exploration activity, to date, has taken place in the Valley of the Kings. This portion of the property accounts for only about 10 hectares, but it is home to high-grade visible gold stringers within a lower-grade quartz stockwork system.

A feasibility study completed in June 2013 outlined probable mineral reserves in the Valley of the Kings of 6.6 million ounces of gold (15.1 million tonnes grading 13.6 grams per tonne gold). An updated mineral resource estimate was completed in December 2013, and estimated 8.7 million ounces of gold in the measured and indicated resource category and 4.9 million ounces of gold in the inferred mineral resource category. This information was gleaned from 922 drill holes totalling more than 218,000 metres.

An updated feasibility study was

completed in June 2014 for an underground mine with an operating rate of 2,700 tonnes per day that would

use a mining method of long-hole stopping and cemented past backfill.

The June 2014 feasibility study shows



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that the Valley of the Kings had proven and probable mineral reserves of 6.9 million ounces of gold (13.6 million tonnes grading 15.7 grams per tonne gold). The West Zone, located less than 500 metres to the west of the Valley of the Kings, was shown to have proven and probable mineral reserves of 0.6 million ounces of gold (2.9 million tonnes grading 6.9 grams per tonne gold).

In total, the numbers indicate the Brucejack Project, predominantly the Valley of the Kings, will produce over 727 million ounces of gold over an estimated 18 years, with an average annual production of 504,000 ounces over the first eight years and 404,000 ounces over

the 18-year mine life.

"The latest feasibility study shows an increase in the overall reserve gold grade and slightly higher metal recoveries," says Quartermain. "Brucejack will be a high-grade, low-cost producer. Even in an uncertain gold-price environment, Brucejack can deliver high margins from a safe jurisdiction."

According to Quartermain, the Brucejack Project is expected to be a significant gold-mining operation.

"We compare well with other Canadian gold mines from both a grade point of view and a longevity point of view," he states.

## CURRENT STATUS

Pretivm Resources filed its environmental assessment (EA) certificate application with the British Columbia Environmental Assessment Office (BCEAO) in June 2014.

"Right now, we're in the process of permitting and doing some of the basic engineering work, as well as getting our financing plan underway," says Quartermain. "Construction would start after we get the permits, which we're expecting to attain in the first half of 2015."

If all goes well, construction will begin in 2015 and carry through 2016, with a 2017 target date for commercial production.



Once commercial production is underway, Quartermain estimates the mining operation will employ about 500 full-time employees. An additional 300 workers will be required during the construction stage.

"We hope to keep the majority of these jobs local," he says, adding that the company is working with three First Nation groups on the project. These include the Nisga'a, Skii km Lax Ha, and the Tahltan. "We've been working with the local First Nations from the outset and have tried to develop a respectful relationship with them. We will continue to keep them well informed of our activities, keep them engaged on the project and will offer them employment opportunities where available."

#### **TRUE POTENTIAL**

With the permitting "process" well underway, Quartermain and his team can continue to advance the Brucejack Project to the point where it is expected to become a profitable operation.

And once the Brucejack Project begins to gain a momentum of its own, Quartermain can broaden his focus

– somewhat – beyond the current 10 hectares of heavy exploration into the remaining 103,000 hectares of the Brucejack Project.

Additional results from surface drilling, which took place in the summer of 2014, have already confirmed the continuity of mineralization in the Valley of the Kings beneath the area defined by the 2013

mineralization resource estimate.

"There is still a lot of potential within the Valley of the Kings," concludes Quartermain. "Just this summer, we drilled a hole one kilometre deep. I believe there is an opportunity to more than double the size of the current resource footprint. There is definitely a lot of exploration potential remaining." ●



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# PREPARED FOR THE FUTURE

## Terrace readies for growth and sees strong development ahead

By Melanie Franner



The Greater Terrace Area (GTA) may have a population of only about 18,000, but it punches far above its weight compared with cities of similar size.

This traditional service hub of northern British Columbia already caters to a regional district of over 37,000. But its economic clout is expected to grow as firms and organizations are poised to develop several large-scale industrial projects – from mining to hydroelectric installations – that will join an impressive number of similar entities already located within the city or nearby.

“Terrace is the natural point to provide services and supplies to industry in northern B.C.,” says Blaine Moore, economic development officer, Terrace

Economic Development. “We have all of the essential services, like health, police, education, transportation, and retail.”

### **A SERVICE CENTRE IN THE NORTH**

Terrace also has the Northwest Regional Airport (which averages over 150,000 passengers a year), plus an established workforce.

“We currently have an unemployment rate of 6.6 per cent, which is pretty low,” states Moore. “But there are unemployed people all over the province who could [relocate] here.”

And although housing is a bit tight at the moment, new construction of 250 multi-family units and 50 single-family

units will ease that situation somewhat. Construction is already underway, with some units expected to be available in fall 2014 and more in fall 2015.

Additional housing will also be available once the modernization of the Rio Tinto Alcan aluminum smelter facility is complete, which is scheduled for spring 2015.

To date, Terrace is indirectly servicing several mines located in the surrounding area. These include the Red Chris mine, which is a copper and gold mine with an anticipated lifespan of 28 years; the Avanti Kitsault Molybdenum Mine, which is expected to become operational in 2015 and inject approximately \$800 million of investment into the province’s



northwest region, while creating hundreds of jobs; the Galore Creek mine, which is still in the environmental assessment stage; and the Kerr-Sulphurets-Mitchell (KSM) mine, which is a gold and copper mine with an anticipated lifespan of over 50 years that is expected to inject \$5.5 billion of investment into the provincial economy.

“The mines are located north of Terrace in remote locations, so each will build its own support system,” explains Moore. “We will provide the more standard services and supplies that will feed the mines indirectly.”

Moore also notes that management at both the Avanti Kitsault mine and the KSM mine have spoken of the possibility of locating their administrative offices in Terrace.

Terrace was also “home base” for the BC Hydro and Power Authority Northwest Transmission Line project, a \$736-million investment that saw the development of a 344-kilometre, 287-kV transmission line between Skeena Substation (near Terrace) and a new substation near Bob Quinn Lake. The new line creates enormous potential for mining and clean-energy development in the surrounding areas.

### ON THE BOOKS

Another significant project with a direct impact on Terrace is the recently completed Dasque Cluster, a 200MW hydroelectric project consisting of two creeks: Dasque Creek and Middle Creek. The Swift Power Corp. (now Vereson Inc.)

project is located approximately 20 kilometres west of Terrace. Construction on the project began in September 2011 and was completed in 2013. The estimated investment was \$60 million.

Another new development for the city is the Skeena Industrial Development Park (SIDP), a 971-hectare track of land purchased by the City and marketed to the heavy-industrial sector as a way to attract industry to Terrace. The City of Terrace and the Kitselas First Nation are joint venture partners in the SIDP, which is located just south of the airport.

In July 2014, the City of Terrace signed an \$11.8 million agreement to sell two portions of the SIDP to Taisheng International Investment Services, a Burnaby-based investment firm that has plans to build several factories on the industrial lands. The first factory is anticipated to be an alfalfa protein extraction plant that would cover a 13-hectare parcel of land and bring 170 new jobs to the region. Construction is expected to begin in 2017 or 2018.

The City of Terrace and the Kitselas First Nation also sold 4.3 hectares of the SIDP lands to Global Dewatering Ltd., an Edmonton-based company specializing in the removal of groundwater at industrial sites. The Kitselas Development Corporation has also purchased 66.7 hectares of the SIDP lands.

“We’re extremely excited about the development of the SIDP lands because it will impact the city of Terrace directly and will bring in a much-needed industrial tax base,” says Moore, who

adds that the remaining SIDP lands will be earmarked for smaller development that will support the industrial park itself.

### PREPARATIONS UNDERWAY

With a huge potential for industrial development to be located in or near the regional district of Terrace, the City is working hard to ensure that it has the services and supplies necessary for rapid growth. Forecasting the actual amount of development may prove difficult for the moment – at least until projected projects are announced officially – but there is no doubt that growth is in the immediate future.

“We could increase by 50 per cent in the next 30 years or we could increase by 25 per cent,” says Moore. “At this point, we don’t know for sure. But we do know that there are going to be significant changes for our area.”

In the meantime, the City of Terrace is engaged in a lot of conversations at the municipal, regional, and provincial levels.

“There are some gaps in infrastructure that we would like to see filled before the rapid growth occurs,” concludes Moore. “Right now, the City is exploring regional collaborations for some revenue-sharing partnerships in the area. And we’re going to the Province to try to secure funds for the expansion of services.”

It’s busy times ahead for Terrace. But long acknowledged as the service and supply centre of the north, the city and its residents are well prepared for the future. ●

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