

# GLOBAL BUSINESS REPORTS

INDUSTRY EXPLORATIONS



## Territories Mining and Exploration 2012

Economy • Industry Partners • Logistics • Services  
Yukon • Northwest Territories • Nunavut



## TOWARDS YUKON'S NEXT CARLIN-STYLE DISCOVERY

**Anthill Resources Ltd. is a well-funded private company engaged in the acquisition and exploration of, as well as investment in, mineral properties in Yukon and British Columbia, Canada.**

The company is currently focusing on exploration of several Carlin-style gold targets within its flagship Einarson Project, situated in east-central Yukon. On its 2,400 square-kilometre Einarson Property, Anthill Resources successfully concluded an aggressive exploration project, progressing in a single season from reconnaissance-style greenfield exploration to identification and drilling of two significant gold targets.

Anthill Resources is also a significant shareholder of Yellowhead Mining Inc. [YMI-TSX] which is developing the Harper Creek Copper Project.

Exploration highlights of the Einarson Project, Yukon include:

- ▶ Multiple trends prospective for Carlin-style gold mineralization identified through drilling, surface mapping and silt geochemical sampling,
- ▶ Two hard-rock gold discoveries in favorable geological settings have been identified,
- ▶ 1,900-metre diamond drilling program has been completed, results pending,
- ▶ Grab samples of silicified carbonates grade as high as 87.2 grams/tonne (2.54 oz/ton) gold at the "D2" target). Strongly developed orpiment and realgar mineralization occur within this particular system, suggesting geological similarity to the Nadaleen Trend discoveries.
- ▶ Property-wide soil, regional and detailed stream sampling, geological mapping and detailed prospecting surveys have been completed.
- ▶ Several new targets identified during regional phase to be explored further in 2013.

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## Natural Resources Development in Canada's North

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*Natural Resources Canada (NRCan) seeks to enhance the responsible development and use of Canada's natural resources and the competitiveness of Canada's natural resources products. NRCan develops policies and programs that enhance the contribution of the natural resources sector to the economy and improve the quality of life for all Canadians.*

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Canada's North is home to world-class natural resources that represent tremendous economic potential. Currently, the mining and energy sectors are responsible for about one-quarter of Northern GDP and approximately 5,000 jobs.

According to some estimates, one-quarter of our known reserves of conventional oil and gas can be found in the North. The number of mines in operation continues to grow, and exploration activities are on the rise. In all, more than 25 projects are in the works for Canada's Arctic, representing over \$20 billion in potential investment in the mining sector. If developed, these projects would create thousands of direct jobs, as well as thousands of indirect jobs in the manufacturing, transportation and services sectors.

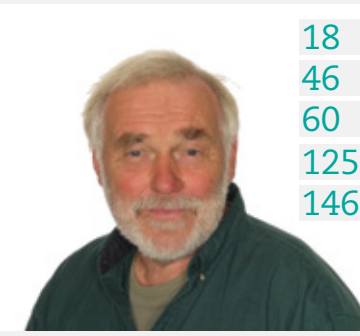
The Government of Canada is laying the foundation for economic development in the North through initiatives such as the Geo-mapping for Energy and Minerals (GEM) program. This \$100-million program is delivering fundamental public geoscience knowledge that enables Northerners to make informed decisions about their future economy and society.

GEM collects information that provides a better understanding of the resource potential in the North, which in turn

encourages private sector investments in mining and exploration. For every region that attracts economic development, there are improvements in living conditions, health and safety, education and employment. In short, development leads to a higher standard of living and quality of life.

The Government of Canada is committed to ensuring that Northerners have access to the same economic opportunities as all Canadians, which is why the Northern Jobs and Growth Act was introduced. This Act fulfills obligations flowing from land claims, and proposes mechanisms to improve regulatory processes, encourage investment, and allow resources to be developed in a sustainable manner. These changes will help create a more stable investment climate in the North by increasing the predictability and efficiency of the review process for major northern projects. This will lead to jobs, economic growth and long-term prosperity for Northerners.

The abundance of natural resources in Canada's Arctic could potentially fuel the country's prosperity for decades to come. The Government of Canada has made the North a priority, and it is committed to ensuring that Northerners benefit from the significant natural resource reserves that are found in their region. •



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All interviews in this book were originally conducted between April and August of 2012.

Although where possible information has been updated to reflect new developments, it should be noted that in some cases views and facts have changed since the time of the interview.





# The Emerging North

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## An Introduction to Mining in Canada and its Territories

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“The current government has a clear policy on the north being a priority; all the branches and sectors of GSC's departments have priority programs in the north. GSC's Geo-mapping for Energy and Minerals program is its most important program in conjunction with its Polar Continental Shelf project; half of GSC's human resources are dedicated to this joint program. There are an abundance of resources in the northern territories; we are working with the stakeholders in the north to advance the northern geoscience knowledge base.”

*- Donna Kirkwood, Director General,  
Central and Northern Canada, Geological Survey of Canada*

# An Introduction to Canada

## A brief overview of the Canadian mineral industry

Economically, Canada is strong. It enjoys the 15th largest GDP in the world and an average GDP growth rate over the past few decades that places slightly above most other industrialized nations. Its 3.2% GDP growth in 2010, 2.4% GDP growth in 2011 and over 2% GDP growth forecast for 2012 are modest yet pleasingly stable in comparison to the prospect of a second recession in Europe and the faltering recovery of the USA.

This economic success is based on stable foundations. Despite falls in the past the past year or two, Canada still ranks high in international rankings measuring the ease of doing business or level of economic freedom. It has a diversified economy and an increasingly diversified export market: although the USA remains by far the most dominant trading partner of Canada, since 2009 the rest of the world has seen its share of Canada's trade increase to over 25%, making it slightly less volatile to the economic fluctuations of its neighbour.

In the mining sector, Canada is blessed with an abundance of mineral wealth. As a mining jurisdiction, both in terms of its geological potential and the availability of domestic expertise, it is rivaled only by Australia. The stock markets of Toronto are home to over 50% of the world's publicly-listed mining and exploration companies and underneath the country's 9,984,670 sq km (the second largest in the world) lie deposits of 54 different mineral types.

Canada is the world's leading producer of potash, accounting for a third of global production. It is the world's second largest producer of uranium, in the world's top five countries for production of aluminum, cobalt, gem-quality diamond, indium, nickel, platinum-group metals, and sulfur, and in the world's top 10 producers of a range of other minerals, including molybdenum, zinc, and gold.

Canada continually attracts more investment in non-ferrous exploration than any other single country, and according to Metals Economics Group's Global Exploration Trends report has done so for the past decade. In 2011 it accounted for fully 18% of global exploration budgets, more than the entirety of Africa or Eurasia and losing out on the top spot to Latin America (with 25% of the total).

Yet for all this strength, Canada is no less susceptible to commodity price cycles than any other jurisdiction in the world. During the worst years of the global financial crisis the Canadian mining industry bore a disproportionate brunt of the pain. The total value of mineral production in the country (over \$34 billion in 2006) fell by over \$16 billion between 2008 and 2009 and operations had been shuttered or suspended at 32 Canadian mines by 2010.

Soaring commodity prices, increased trade links with the booming commodity market of China (trade volume between the two countries is targeted to reach \$60 billion by 2015) and the country's technical expertise in the sector saw a strong rebound in 2010. Planned exploration spending in Canada rose 73% in 2010, to form 19% of the total worldwide exploration budget; ahead of any other country. The sector (including oil and gas) returned to providing 4.5% of GDP, after falling to roughly 3% over the course of the crisis.

Since then, performance of the minerals sector has been mixed. Commodity prices, although still high, have begun to waver. Gold has fallen from a peak of almost \$1,900/oz in September 2011 to little over \$1,700 at the time of writing. Copper reached highs of over \$4,500/lb early 2011 and at the time of writing were below \$3,500. Silver has gone from a high of just under \$49/oz to just over \$33, falling well below \$30 at times in between.

Although these prices are, by and large, equal to or even greater than those of pre-financial crash days, their uncertain nature, exacerbated by the faltering recovery of the USA and Europe and the apparent slowing of China's formerly insatiable demand for raw material, has contributed to wariness among investors. Those mines in production already are enjoying high, albeit fluctuating, prices for their product, yet for junior companies funding is proving increasingly difficult to come by.

In such times, investors should be looking at projects that offer high reward with little risk. Under-explored territories with proven mineral potential are ideal, yet today rarely exist outside those countries where political instability or resource nationalism have kept development at bay. Canada's territories, Yukon, Nunavut, and the Northwest Territories, are three of the very few exceptions. •

## Canada at a Glance

Source: CIA World Factbook

**Population:** 34,300,083 (July 2012 estimate)

**Capital:** Ottawa

**Head of Government:** Prime Minister Stephen Joseph Harper

**Currency:** Canadian Dollar (CAD)

**GDP:** \$1.711 trillion (2011 estimate)

**Growth Rate:** 2.4% (2011 estimate)

**GDP per Capita:** \$40,500 (2011 estimate)

**Economic sector breakdown:** agriculture: 1.8%, manufacturing: 28.5%, services: 69.7% (2011 estimate)

**Exports:** \$463.1 billion (2011): motor vehicles and parts, industrial machinery, aircraft, telecommunications equipment; chemicals, plastics, fertilizers; wood pulp, timber, crude petroleum, natural gas, electricity, aluminum

**Imports:** \$460.7 billion (2011): machinery and equipment, motor vehicles and parts, crude oil, chemicals, electricity, durable consumer goods

**Major Trade Partners:** US, China, Mexico, UK





**2.46%**

**GDP Growth Rate  
2011**

Source: World Bank

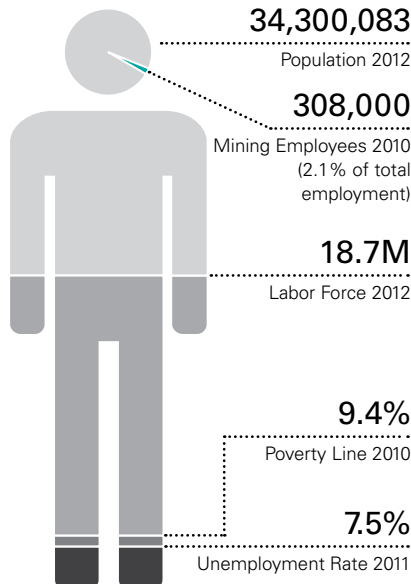
**\$1.7361  
TRILLION**

**GDP  
(current US dollars) 2011**

Source: World Bank

**Population and Workforce  
information**

Source: CIA World Factbook, NRC



**-\$8.011  
MILLION**

**Net Foreign  
Direct Investment  
(current US dollars) 2011**

Source: World Bank

**3.1%**  
**Inflation Rate  
Average Consumer Prices 2011**

Source: CIA World Factbook

# Interview with Pierre Gratton & Rick Meyers

PRESIDENT AND CEO; VICE PRESIDENT, TECHNICAL AND NORTHERN AFFAIRS, THE MINING ASSOCIATION OF CANADA

**Can you tell us about the history of The Mining Association of Canada in Canada's north, specifically in the Northwest Territories and Nunavut where your key members are?**

**PG:** Over the last 15 years our current membership in the Northwest Territories has been built around the diamond industry, starting in 1996 with Ekati, followed by Diavik, then Snap Lake, and currently being developed Gaucho Kue. Initially we focused on the Northwest Territories. During this period MAC saw the development of a new regulatory regime for the north with the McKenzie Valley Resource Management Act. MAC has assisted with the difficulties associated with new legislation, and poor or non-geoscience mapping in Nunavut and the Northwest Territories. Nunavut has become increasingly attractive from an exploration standpoint, but is lacking in geoscience information and infrastructure; it is a challenging place in which to develop new projects. Currently, there is only one producing mine, namely Meadowbank Gold Mine, owned by Agnico-Eagle Mines Limited, but there is great geological potential in the region illustrated by the presence of the majors, for example, Xstrata, Vale.

**RM:** The Prospectors and Developers Association of Canada would have a more comprehensive perspective of mining activity trend in Yukon. There is not the past volume of junior exploration in the Northwest Territories due to the complexity of the new regulatory procedures, a reversal of what is happening in Yukon and Nunavut. There are two unsettled land claims in the Northwest Territories, which are adding to the reduced junior exploration interest. On the upside with the increase in diamond mine production, the Northwest Territories has enjoyed the following: growth in mineral production with 30,000 person years of employment; more than \$12 billion in investment at the mine sites; the GDP of the Northwest Ter-

ritories has almost tripled from \$1.6 billion to \$4.5 billion annually; and substantial increases in skills and community development, and education, have permeated from impact agreements with aboriginal groups.

**What role will MAC take in the forthcoming development potential of Canada's north?**

**RM:** On behalf of our members our advocacy work entails working with the federal government who is the regulatory and legislative lead in Nunavut and the Northwest Territories. We are continuously seeking to streamline and improve the complexities of the regulatory system. We also encourage the federal government to invest in geoscience, and the northern infrastructure.

**Do the relevant governments understand the need for more geoscience information, and if so, are they taking steps to correct this?**

**PG:** In the early 2000s it was identified that 80% of Nunavut and around 60% of the Northwest Territories were geoscientifically unmapped, and Yukon's quality of mapping was inferior to that of southern Canada. MAC was behind a number of studies and proposals to persuade the Canadian government to reinvest in northern geoscience; ultimately we were successful and the government committed investment to GEM (Geo-mapping for Energy and Mineral program).

**Do you feel that the lack of geoscience in the north is the reason why mining has only just started to open up?**

**PG:** Geoscience is one of the basic building-blocks of minerals economy; new maps attract junior exploration companies. The lack of geoscience has been one of the reasons why mining growth in the north has been limited. Other reasons are: severe climate; remote location; lack of infra-

structure; and small population equating to limited skill availability. The upside is that it remains largely undiscovered with huge resource potential; discoveries made have been world-class.

**What activities is MAC conducting to promote mining in the north?**

**PG:** MAC's role is to represent its members to the federal government, and to persuade the Canadian government to make mining in Canada an attractive investment. It is the Canadian government's job to promote Canada's north as a mining destination.

**RM:** Currently, Yukon offers the most economic alternative for mining in the north; it has the most infrastructure and population of the north's three jurisdictions. Nunavut has virtually no infrastructure, a small population with low levels of education, and limited skilled labor.

**What initiatives have your members introduced to assist the shortage of skilled labor in the north?**

**RM:** In every new mine development, our members have engaged in: skilled training projects; on-the-job management and employee literacy programs; and how to manage personal income. The population in the north has a very low experience of employment, especially in the heavy mining industry.

**What are the key issues we should be looking at as the mining industry evolves in the north?**

**PG:** MAC is awaiting the Nunavut Planning and Project Assessment Act to be tabled. We are advocating for similar improvements that have been seen south of 60 which will remove on-going irritants in the north i.e. double-bonding at Meadowbank, Nunavut, where posting of its bonding for reclamation security has to be with both the federal government and Regional Nunavut Association; neither licensing authority can agree who has sole responsibility for bonding, this remains unresolved. Water licenses issued in the north, particularly the Northwest Territories, have been of a short duration, only three to five years; in southern Canada a life-of-mine license is issued, reviewed periodically. MAC's lobbying for longer water licensing has seen modest progress with the agreement of an eight-year license. If these, and other issues are addressed, it will be easier for companies to make the major investments required in the north. •

# Underexplored, Underdeveloped and Undervalued

## An introduction to Canada's Emerging North

As the world becomes more accessible and its last corners are explored, there are very few virgin frontiers available. Exploration companies seem increasingly willing to tolerate burdensome regulations and unfriendly communities in far-flung countries in the hunt for some of the world's last major gold deposits.

Yet in truth some of the greatest potential lies far closer to home. Romantic notions of Yukon's famous gold rush still hold in the minds of prospectors who have only recently started recognize the resources that land still holds. Canada's territories, comprising of Yukon, the Northwest Territories and Nunavut, provide grand opportunities and prospects for those willing to challenge one of the world's harshest climates.

While the remoteness of these areas undoubtedly presents obstacles to its development, explorers can at least be sure that the relevant authorities are not against them. The Canadian government has targeted resource development, particularly in Canada's territories, as a key priority. Conservative Canadian Prime Minister Stephen Harper's Economic Action Plan 2012 for Resource Development has vowed to open up the North.

These moves, combined with the sheer geological potential, have begun to pay dividends. In 2011, diamond production was up by \$40 million over 2010 in the three Canadian territories, while tungsten production increased by \$55 million from 2010 to 2011. In the Northwest Territories, mining's contributions, led by diamond production, exceed all other private sector contributions to the territorial GDP, accounting for 29%. The sole mine currently in production in Nunavut already accounts for 15% of the territorial GDP. Exploration expenditure, even in today's sensitive

market, is set to increase by \$20 million in the Northwest Territories. Nunavut currently has eight potential mines that could develop in the foreseeable future with the Northwest Territories containing a potential six.

Challenges will remain an issue hindering any potential explosion of growth in Canada's harshest and most underdeveloped physical environment. While some issues exist throughout the industry; shortages of skilled labor, retention of staff, secure power supplies and a struggling junior market being chief among them, others are more unique to Canada's North.

Though Yukon appears the North's most developed mining destination, with over 100 years of mining experience, an infrastructure supporting its most developed areas and the country's highest rate of growth, there are still concerns. Eleven of 13 First Nations land claims have been settled, though concerns about the training and inclusion of Canada's original population still arise. Yukon's power supply, while adequate for the current production activity in the region, appears inadequate to supply another mine. Nevertheless, its government actively promotes its resources to the international investment community so that Yukon may well be the "emerging North's" source of greatest potential.

Nunavut, Canada's youngest independent territory, has a population of just over 33,000 and development which reflects the scarcity of population spread across 20% of Canada's land mass. With a territorial infrastructure that relies heavily on the changing of the seasons, the development of new projects and even basic exploration activity requires perseverance and determination. For example, roads do not connect any of Nunavut's communi-

ties. A population with relatively little mining experience also makes local skills and services a particular challenge. Nunavut has started to explore its mining potential; while heavily focused on iron, diamonds, gold, base metals and even uranium may soon have their day in the sun. The geological potential of these minerals is already attracting attention.

The Northwest Territories, with four active mines, may face the most challenges in Canada's North. The population of 43,000 inhabits a land with diamonds, gold, base metals, and more diverse commodities such as bismuth, cobalt and rare earths. The current unsettled lands claims and regulatory framework in place has caused much frustration amongst the mining community currently active in, or looking to, the Northwest Territories. The great vastness of the Northwest Territories also faces infrastructure challenges and a lack of geological mapping.

In all three territories, engagement with Canada's aboriginal groups is vital. The First Nations, Métis and Inuit all have a significant part to play in the development of the North's mining industry.

With almost 1,700 juniors vying for investor dollars on the TSX-V, and purse strings tightening the world round, today's junior market has spread a gray cloud over 2011's booming Canadian market. The range of forecasts for the future of the industry is as varied as the minerals it exploits. Some state that the market has hit rock bottom, however incongruous that may seem a mere three years after the global economic crisis. In a period where quality projects and experienced managerial leadership struggle to weather the storm, the future of the junior market remains uncertain.

Others, however, prefer to see the current market as an opportunity, especially for those companies operating in Canada's territories. With money no longer cheap, funds are no longer there for juniors simply making the right noises in the right jurisdictions, no matter their tangible geological promise. Investment is in similarly short supply for those operating in countries caught up in the rising tide of resource nationalism that is apparent in much of Africa and some of South America.

This leaves Yukon, Nunavut, and the Northwest Territories in a particularly

strong position: proven geological potential yet far from being exhausted. Although issues remain with some elements of the business environment and regulatory framework, there is no doubt that legal certainty protects a company's assets far better than in most jurisdictions around the world.

Canada's North contains vast amounts of mineral wealth waiting to be developed. The extent of this development is heavily reliant on three key factors: the current state of the junior market, the level of mapping and geophysical information available and engagement with the aboriginal groups. •

## Mineral Production by Province and Territory (2011)

Source: NRC

	Metallics	Non metallics (\$000)	Coal	Share of production (%)
<b>Yukon</b>	394,960	6,833	-	0.8
<b>Northwest Territories</b>	64,497	2,079,554	-	4.3
<b>Nunavut</b>	413,989	-	-	0.8
<b>British Columbia</b>	2,095,597	805.758	5,691,021	17.1
<b>Alberta</b>	1,120	x	x	5.1

## Territories at a Glance

Source: CIA World Factbook

### Yukon at a Glance

**Population:** 33,897 (2011)

**Capital:** Whitehorse

**Head of Government:** Premier Darrell Pasloski

**Gross Territory Product:** C\$2.660 billion (2011)

**GTP per Capita:** C\$64,649 (2010)

**Economic Sector Breakdown:** Mining, tourism, manufacturing, hydroelectricity

**Total area:** 482,443 km<sup>2</sup>

**Motto:** None

### Northwest Territories at a Glance

**Population:** 41,462 (2011)

**Capital:** Yellowknife

**Head of Government:** Premier Bob McLeod

**Gross Territory Product:** C\$4,791 billion (2010)

**GTP per Capita:** C\$100,128 (2010)

**Economic Sector Breakdown:** Mining, oil and gas, finance, construction

**Total area:** 1,346,106 km<sup>2</sup>

### Nunavut at a Glance

**Population:** 31,906 (2011)

**Capital:** Iqaluit

**Head of Government:** Premier Eva Aariak  
**Gross Territory Product:** C\$1.964 billion (2011)

**GTP per Capita:** C\$49,368 (2010)

**Economic Sector Breakdown:** Mining, construction, tourism, fishing

**Total area:** 2,038,022 km<sup>2</sup>

**Motto:** Nunavut Saanginiuvit (Our Land, Our Strength)



## Interview with Chuck Edwards

FORMER PRESIDENT, CANADIAN INSTITUTE OF MINING,  
METALLURGY AND PETROLEUM

### What is the current state of CIM's lobbying for safety laws and worker protection in the mining sector of Yukon, Nunavut, and Northwest Territories?

CIM is a non-profit organization and cannot lobby. We do have contact with the federal government in the form of Canadian Securities Administrators (CSA) who administer the stock exchanges and are legal, not technical people; CIM is the technical adviser to CSA. The securities regulations are overseen by CSA for the stock exchanges. Technical specifications, guidelines, and best practices, all originate from CIM; for example, the NI 43-101 Technical Report is the Canadian standard, and is one of several world standards. On safety, we are cooperating with our US sister organization on a reliability, sustainability and safety conference. Safety issues are discussed during all our conferences. In Canada the mining and minerals industry is relatively safe, as compared to construction, forestry, and farming.

### How do you think the mining industry is currently perceived by the general public?

The mining industry is better understood and supported by those people living in close proximity to a mine; generally those who live further away from a mine are less supportive. There is an appreciation in Canada of how important mining is to the economy, and the reputation of the mining industry is good. The uranium mining and milling industry in Saskatchewan carries out regular surveys to evaluate support for the industry, and generally in Saskatchewan the further south the lower the support. Operations for the uranium industry are concentrated in the north of the province where the industry enjoys high support and an appreciation of its importance. In Yukon, Nunavut, and Northwest Territories mining and milling has been, and will continue to be, one of the major economic drivers in northern Canada, with the industry enjoying good support.

### How do you view the state of the junior mining exploration companies in Canada?

From a global perspective, Canadian junior mining companies are robust. Canada still has vast areas of unexplored resources, and has the Toronto Stock Exchange (TSX) which is the world's biggest generator of mining capital; the downside is financing for the juniors is very sensitive to the current commodity prices and future expectations. In Saskatchewan there is a sound market future for gold, but mostly with energy (uranium and fossil fuels) and potash. Interference from the government would not be helpful to the junior exploration companies; let the mergers and acquisitions happen naturally. The reasonable regulations that Canada has will allow the market to work. •

## Interview with Leona Aglukkaq

MP FOR NUNAVUT, MINISTER RESPONSIBLE FOR THE  
NORTH AND CANNOR

### Can you give us a brief overview of the Canadian Northern Economic Development Agency (CanNor)?

The existence of CanNor is a testament to the importance this government places on the economic future of the North. In all of Canada, there are regional development agencies. For whatever reason, the three territories did not have an equivalent agency to focus on development in the North. Since the Prime Minister announced the establishment of CanNor, we have been rolling out operations in the Yukon, the Northwest Territories and in Nunavut.

Within the organization, we also have the Northern Major Projects Unit which focuses on supporting the federal family in response to mining environmental review processes. We have made significant investments in the North related to capacity building, infrastructure, and training Northerners. Feasibility studies are being conducted in the North as well as in Nunavut, but not just for the mining sector. Business startups, tourism and training initiatives are part of these studies but are still directly related to the mining sector. Our scope is quite broad but these initiatives are making a big difference.

### Is infrastructure the responsibility of the federal government in the territories or should the territorial governments and the private sector be taking the lead?

Our government has been partnering with the private sector, the territorial governments and the indigenous groups of the North. Infrastructure has to be a joint initiative. We recognize that infrastructure is necessary not only for the success of mines in the north but also for other ventures as well. Going forward with this partnership approach allows all parties to create something beneficial to everyone. The industry can really contribute to the development of overall infrastructure in these areas.

### What is the federal government doing to promote training in the three Northern territories?

Our government has made significant investments in training and skills development. This includes adult basic education, direct involvement, visits from the Prime Minister, and various resources related to skill training. We recognize the importance of the participation of Northerners in economic development opportunities, and training is a necessary first step. The territorial government has also done great work related to training and employment. After the establishment of the mining projects in Baker Lake, the unemployment rate dropped from 65% to 4% due to these local training and hiring initiatives. The benefits of these projects extend beyond just local employment opportunities and into the betterment of the communities and our projects as a whole. •





# Emerging Industry Partners: Canada's Northern Aboriginal Peoples

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“In our present world of uncertainty in most markets and jurisdictions, this industry is considered high risk at the best of times and you really have to look at things like political risk and cost factors. Countries like Canada, traditionally one of the safest jurisdictions in the world, needs more skilled workers. We are seeing changes, both good and bad, all over the world, notably Southeast Asia and Africa. These can be great places to go work but these countries are also poaching skilled workers for other mining jurisdictions. Stating that, we are expecting over 200,000 skilled jobs to be filled in the Canadian mining industry over the next decade or so, and I would suggest that the number one place to find that untapped market is within the native community in Canada.”

- *Jim Pettit, President,  
Aben Resources Ltd.*

# The Strength of Local Communities

The aboriginal people of Canada consist of the First Nations, the Inuit and the Metis. The term "First Nations" encompasses over 600 bands across Canada and the term "Inuit" also contains a number of other distinct groups under its umbrella. Any all-encompassing term is often subject to disagreement. The authors of this report have strived to use the correct terminology wherever possible, but sincerely apologize for any disagreement that may occur.

## Metis, Inuit and First Nations

The aboriginal peoples of Canada, divided into three predominant groups of Metis, Inuit and First Nations, have long been surrounded by mining operations and exploration activities. In some cases, however, it is only recently that they are beginning to take on significant engagement as partners in the industry. For any company, whether it be a junior explorer or a multi-national producer, understanding the political aspects of this engagement is key for a successful project.

The record of the mining sector has, unfortunately, not always been successful in this regard. Yet like its environmental record, it is unfair to judge modern mining by the actions of those companies operating decades ago. Today, companies operate by a much higher set of standards, something that is understood by all parties involved.

"The key topics of engagement [with the mining industry] have been cleaning up past environmental disasters that have been left by mining companies, ensuring that best mining practices are utilized in our traditional territory and ensuring that our First Nations are equal partners in any economic opportunities that are taking place in our traditional territories," explained Chief Simon Mervyn, Sr, of the Nacho Nyak Dun, Council of First Nations in Yukon.

Strong and mutually beneficial relationships between companies in the mining sector and aboriginal communities are more than a token effort to comply with regulations or ward off criticism. Many of the largest and most respected companies in the industry regard a recognition of the respect earned by the North's original occupants as a necessary prerequisite to a project's success. "It is essential that business in the North is conducted in an environmentally sensitive fashion and that First Nations' culture is acknowledged," said Brent Thompson, senior vice president, mining and minerals, of Tetra Tech,

one of the world's leading providers of engineering and consulting services.

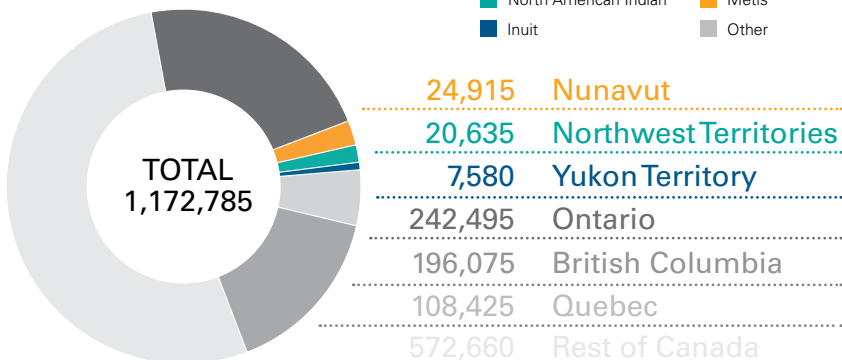
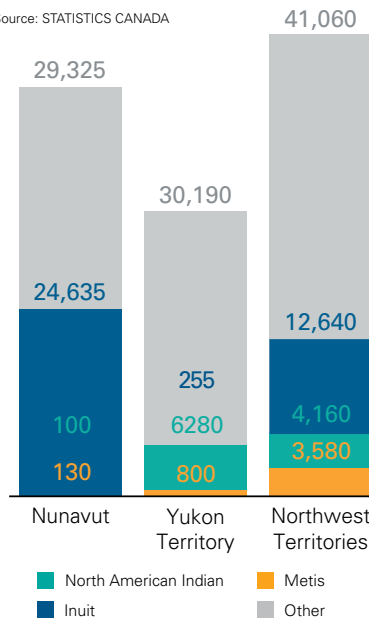
For Elgin Mining, a company that already operates the Bjorkdal gold mine in Sweden and is in the process of developing its Lupin gold mine and continuing exploration on its advanced Ulu gold project in Nunavut, its extensive experience in the territory has reaffirmed the importance of these relationships. "A mine cannot be developed in a district without understanding what it means to the local communities. Elgin Mining and its fellow mining fraternity strive to conduct business in a manner with least effect and maximum benefit to the local communities. Arguably, mining companies should look beyond the usual CSR initiatives, such as sponsorship, and look at CSR initiatives that are sustainable having a positive impact on the local community," said Patrick Downey, president and CEO, Elgin Mining Inc.

Mining companies themselves proudly showcase their local engagement. "We canvas elders about their knowledge of the area to be aware and sensitive to any archeological sites and areas that are currently used... Working towards good community relations is not only the responsible thing to do as a company operating near the communities, but also it is important from a business perspective," said Brooke Clements, president of Peregrine Diamonds Ltd. in Nunavut and the Northwest Territories.

Canada's aboriginal peoples are not passive bystanders to the continual development of the territories' mining industries. For companies to promote and maintain good relationships with them is more than a moral imperative; it is a golden opportunity. As the North continues to develop its mineral potential it is its inhabitants that will increasingly provide the workforce, the service partners, and the regulatory openings that the mining industry requires. Engagement and understanding are key. •

### The Aboriginal Population of Canada

Source: STATISTICS CANADA





# Interview with Chief Simon Mervyn, Sr \*

NACHO NYAK DUN, COUNCIL OF FIRST NATIONS IN YUKON

\* Simon Mervyn was chief at the time of our interview. Ed Champion now holds this position

## Can you give a brief history of Council of Yukon First Nations (CYFN) Yukon; and the First Nation of Na Cho Nyak Dun (FNNND)?

Council of Yukon First Nations is comprised of the Chiefs from the individual Yukon First Nations. It is a forum for leadership to get together and discuss issues of common interest and, if necessary, take group action. There are 14 First Nations in Yukon that have settled Land Claims and Self Government Agreements with Canada and Yukon, the first 4 of these signed their agreements in 1995 and the others in successive years. There still several First Nations who do not have settled claims, however, they can belong to the Council for Yukon First Nations if they choose. Our First Nation of Na Cho Nyak Dun people have been present in central Yukon for thousands of years. Our traditional territory is located around the Yukon village of Mayo and includes many square kilometers of land. The NND citizenship is over 600 souls from across Canada, around 300 live in the traditional territory, however we have an obligation to provide government services for all citizens. We have a wealth of information on the development and relationships with the mining groups.

## What have been the key topics of engagement between the Nacho Nyak Dun and the mining industry?

The Nacho Nyak Dun have inadvertently been involved in the mining industry for the last 100 hundred years and for the past 80 years specifically in and around Keno Hill. Starting with Treadwell Yukon through Falconbridge and now Alexco all in the same area, our people have lived with, and worked at, hard-rock silver mines in our area, as well as smaller placer gold operations. We are also starting to see other hard rock companies come into our territory as well. During our history of mining involvement we have learned some hard lessons. Our key concerns are: the mining fraternity does

not pay attention to the land claims and self government agreements our First Nation has signed with Canada (and Yukon) and accompanying obligations, responsibilities and jurisdictions we have. The agreements are about joint stewardship of the land, preserving the integrity of our environment and ensuring economic opportunity and some of the mining proponents coming into Yukon are not always respectful of our position on environmental issues that are based in our traditional values. The key topics of engagement have been cleaning up past environmental disasters that have been left by mining companies, ensuring that best mining practices are utilized in our traditional territory and ensuring that our First Nation is an equal partnership in any economic opportunities that are taking place in our traditional lands.

## Has the Yukon government encouraged mining companies to engage with Nacho Nyak Dun First Nations when entering Yukon, or have mining companies contacted you independently?

The Yukon government entered late into the agreement process with NND and Canada, nonetheless, they are a full signatory on the agreements. The current Yukon government appears to considers our final agreement with Canada to be a bipartite agreement and not a tripartite agreement; a major problem for Nacho Nyak Dun First Nations as we are not fully involved with the development and planning of Yukon. The Yukon government continue to undermine our authorities and disrespect the process set out in the agreements. We will overcome this problem by ensuring the final agreement is respected and abided by; this is an expenditure of energy that is unnecessary. Mining companies wishing to mine in our traditional territory must enter a negotiation process with First Nations; there is an absolute understanding of this from the big players. Individual mining

companies have contacted us and have entered into Cooperative Engagement Agreements with us and we are pleased to have them as partners; those who choose not to acknowledge our claims do so at their own peril. Yukon government could do a much better job explaining the self-government agreements and the cooperative nature of the land claims agreements. We welcome industry and business to our traditional territory, we only ask that we be involved from the ground up in the development of projects and that our rights and titles be respected. I am pleased to say that we have several partners who have made these absolute commitments to us and those relationships are going well.

## Do you feel that there are sufficient government and private training programs and initiatives in place to ensure First Nations' participation in the mining industry?

Built within the final agreement was the development of the educational curriculum for First Nations in Canada. With current government cut-backs, including industrial art classes essential for introduction to the mining industry, First Nations' children are leaving high school not being able to read a measuring tape; the mining fraternity is keen for our children to be trained and supported through scholarships, but with the cut-backs these scholarships are not as forthcoming. First Nations are having great difficulty convincing governments that there is a need in Yukon for these, amongst other, classes and skills to ensure our children have a balanced and adequate education and are better prepared to enter this workforce. The YMTA has made best efforts to offer some training, however, the Yukon is a very large place and the materials needed to put on some of these courses are expensive and place sensitive. We need to focus on the basic education that people need in order to go forward into training programs. •

# The Importance of Local Community Development: A Company Perspective

By Grant Pearson, Vice President Business Development, Nuna Logistics Ltd, Nuna Group of Companies

Canada's Northern Territories; Yukon, Northwest Territories, and Nunavut; are a vast region rich in mineral potential and remain active exploration targets for both domestic and international companies. According to Natural Resources Canada's latest semi-annual report on Exploration and Deposit Appraisal Expenditures, forecasts are lower for 2012 in Nunavut and the Yukon, however, expected expenditures are higher for Northwest Territories. Nunavut remains at fourth place overall in terms of Canadian spending.

In November 2012 Prime Minister Harper's Government introduced the Northern Jobs and Growth Act to help create a more stable investment climate for the development of northern resources, and promises to respond to calls for improvements in Northern regulatory processes. In order to meet the requirements of the potential infrastructure construction that continued spending, and revised regulatory regime will undoubtedly bring to the North, these future projects will require the expertise of service providers familiar with the logistical challenges of operating in the territories and one that understands the importance of engaging local communities in project development.

An Inuit-owned company, Nuna Logistics Limited has experienced continuous growth since the company's inception in 1993 and has been involved in just about every mining project in the Northwest Territories and Nunavut. Entering their 20th year of operation, part of Nuna's success comes from the ability to recognize challenges and analyze potential solutions that carry the maximum benefit to the project and the various stakeholders.

In addition to the Tibbitt to Contwoyto Ice Road that Nuna constructs and maintains each year, Nuna's expertise includes the construction of all earthworks related infrastructure in support of northern mining development including airstrips, all weather roads, dams, fuel tank farms and con-

tract mining. As the initial proponent of the Bathurst Inlet Port and Road with partners Kitikmeot Corporation, Nuna also understands the importance of establishing the infrastructure necessary to proceed with northern development and the regulatory requirements associated with it.

The harsh climactic conditions, the lack of infrastructure and the shortage of a skilled workforce are among the many obstacles project developers must face when advancing a mineral resource to feasible economic development.

The founders of Nuna recognized the value in creating an ownership structure that provides direct benefit to the Inuit beneficiaries. Nuna's Inuit ownership consists of the Kitikmeot Corporation (the economic development division of the Kitikmeot Inuit Association) and Nunasi Corporation (a development company that represents all Inuit beneficiaries of the Nunavut Land Claims Agreement). In a region where negotiated impact benefit agreements (IBAs) are common, not only do Nuna's Inuit employees benefit through direct hire, there is also a benefit through the company's ownership structure as beneficiaries of the land claims agreement.

Nuna has expanded to other regions and has incorporated several other Aboriginal businesses across Canada to assist in increasing local capacity by offering their experience in remote project development. Nuna was recently awarded for their efforts by the Prospectors and Developers Association of Canada and was presented with the Skookum Jim Award at the 2012 PDAC in Toronto for Aboriginal Achievement in the Mineral Industry.

Although Mr. Harper's Government is taking steps to streamline the regulatory process, the potential mineral development in the Canadian north will still be restricted by the shortage of skilled labour. This shortage will require the import of labour from Southern Canada or other regions unless extensive training programs are

implemented with the support of federal funding.

Training and safe equipment operation has been an integral part of Nuna's success. Nuna established a standalone training division early in their company history to assist with skill development and provide custom training programs to clients. One of the first to introduce advanced motion based equipment simulators to the Canadian mining industry, Nuna's simulators have been instrumental in both the familiarization of heavy mining equipment and emergency response readiness. Nuna has containerized the simulator to meet the demands of the harsh Arctic environment and enable easy mobilization to remote communities and mine sites. With the ability to easily change the simulator components to simulate a rock truck, shovel, dozer, excavator or grader the student is exposed to various different scenarios ranging from slippery ramps, foggy conditions to engine fires and several other scenarios. This innovative technology and its application in the North, provides excellent exposure to both existing and potential employees.

To further expose potential employees to the industry and to assist in communicating project requirements to Northern communities, Nuna participates in community engagement programs providing community members with valuable insight into the experience of living in the remote fly in fly out camps of these remote projects, and provides information on the types of positions that may be available on a project for potential new employees.

Recently adding presentations to high school students at the Grade 10 and higher level, Nuna is focused on encouraging students to stay in school and complete their Grade 12 education. The presentations describe the various skill sets required for the available positions and offer an introduction to safe work practices. At the post-secondary level, Nuna has

committed a three-year scholarship to the University of Alberta to be awarded to an Aboriginal student enrolled in Graduate Studies. Nuna is hopeful that these efforts will assist in developing a skilled workforce to meet the future labour demands. Unlike southern operations where many employees can live in reasonable proximity to their place of employment, northern mining operations must add the cost of flights, catering, and housing, which increases on site labour costs relative to other locations. Additionally, the cost of freight to transport permanent and consumable materials further increases the cost of operating in the North. Nuna's eye for innovation has created a requirement to establish a new division to research and market potential solutions to help address some of the unique and expensive challenges. Through their new division, Nuna Innovations, Nuna recently acquired the Canadian and Mongolian distribution rights to a product called Concrete Canvas. This unique product is a concrete embedded cloth that is sold by the roll. The cloth can be molded into almost any shape and once hydrated, the concrete sets in place. Nuna recognized the potential savings in labour, manufacturing and shipping costs when evaluating this product for remote and northern locations. Concrete Canvas has been very successful in slope stability applications, ditch lining and is currently being tested in underground mining applications such as bulkhead construction and as an alternative to shotcrete.

Nuna's commitment to Aboriginal engagement, training, innovation and practical project development leave them well prepared for the unique challenges expected in the future development of Canada's mineral industry. •

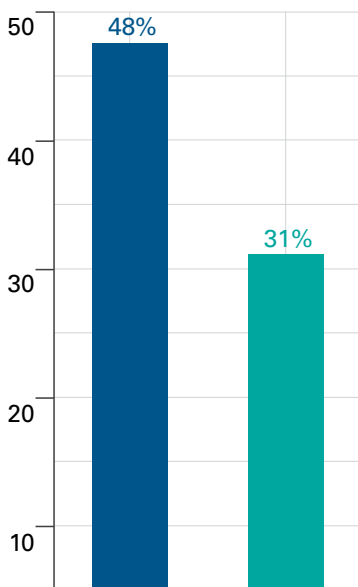
*Grant Pearson, P. Eng. is a mining engineer with over 20 years of experience in the Canadian mining industry. Grant obtained his Bachelor of Science in Mining Engineering from Montana Tech of the University of Montana and has worked in large open pit porphyry copper deposits, heap leach gold operations and in the Canadian diamond sector. His early experience included block modeling, resource evaluation, open pit and underground mine design and operations. Over the past 12 years he has held various positions with his current employer the Nuna Group of Companies, including Project Manager, Manager of Engineering and Manager of Strategic Initiatives. He currently holds the position of Vice President, Business Development.*

# Land Claims and Negotiations 101

## The regulatory environment and aboriginal peoples

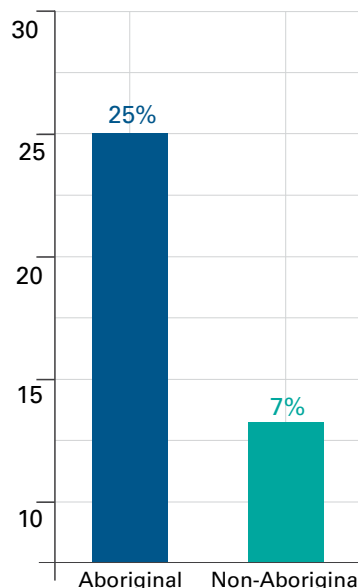
### Share of population under the age of 25

Source: STATISTICS CANADA



### Growth of self-employed workers from 2001 to 2006

Source: STATISTICS CANADA



The human presence in Canada dates back over 25,000 years, with various different groups arriving at varying stages throughout the intervening millennia. Although early European settlers and misguided popular culture may have painted pre-colonial peoples as primitive or worse, the overwhelming evidence points to established settlements, trade networks, sophisticated agricultural techniques and complex societal structures. The descendants of these civilizations now constitute the Metis, Inuit and First Nations of modern Canada and as such have rights to the land they have lived on for generations.

These rights have effectively shaped the legislation and regulation that today governs the mining industry of the North. "A hallmark of the North," said Tom Hoefer, executive director, Northwest Territories and Nunavut Chamber of Mines, "is land use planning, as access to land is the lifeblood of our [mining] industry... The land claims processes here now create a methodology for First Nations governments and public governments to collectively participate in managing resources in the North."

This has not been a simple process, and the intricacies and details are by no means constant throughout Nunavut, Yukon and the Northwest Territories. "The regulatory framework for all three territories in the North has been driven by the requirements of the land claims. There is a risk of creating a patchwork quilt because of this. This is not the case in Nunavut where there is one land claim for the whole territory. In Yukon, final agreements have still to be achieved with 11 of the 13 First Nations. In the Northwest Territories there are four settled claims and three more pending," explained John Donihee, barrister and solicitor with law firm McLennan Ross LLP.

With multiple different groups holding rights to different pieces of land, negotiations and agreements have not followed a

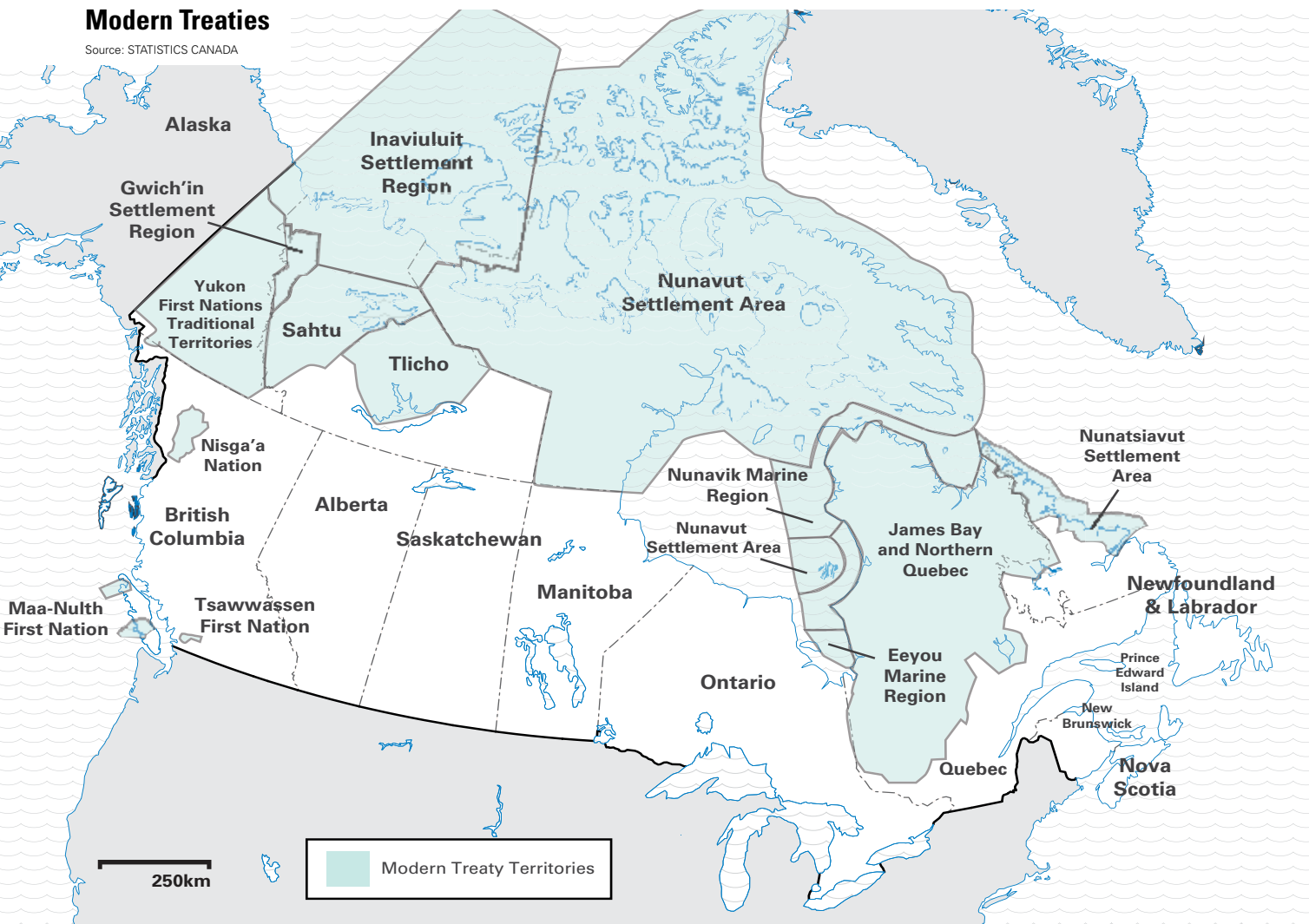
set standard. "All land claims are different: in some, the crown manages the mineral tenures but you need to get a surface lease from the aboriginal group; in other cases the First Nations also own the mineral rights," said Christine J.S. Kowbel, a partner at Lawson Lundell LLP. This has raised concerns with mining companies who have interests across the region, that worry about the effect of the regional and cultural differences in these negotiated agreements. Nick Poushinsky, senior principal environmental management - Canada, at Stantec Consulting Inc. explained that "the biggest challenge faced by Stantec's industry is not biophysical but it is the uncertainty and fluidity of the regulatory processes in the North. Related to the fluidity of the process is balancing the growing expectations of northern First Nation communities and their

input in the process and decision making and resource management." The danger for exploration or mining companies in this uncertain and often confusing situation is twofold: there is the complexity of attempting to understand and abide by differing regulations, but also the risk of being caught up in a political game that distracts from the work they entered the region to do. Unresolved land claims do not preclude the necessity of dealing with aboriginal groups, yet existing agreements and commercial activities will undoubtedly serve a political purpose as they are factored into land claim negotiations. As one junior company told GBR, "there is always the underlying current of politics between First Nations governments and Canada itself which exploration companies can be drawn into." Yet these challenges are, gradually, dissi-

pating. Donihee of McLennan Ross said: "There can be some differences in land claims from one area to the next, creating difficulties for the mining industry. The federal government is responding by proposing changes to the Mackenzie Valley Resource Management Act [an Act to provide for an integrated system of land and water management in the Mackenzie Valley], which will simplify matters, particularly in land permits and water licenses." Territorial governments are also working towards settling these claims and creating a more predictable environment. Hon. Bob McLeod, Premier of the Northwest Territories government, said: "As we work to settle land claims across the territory we are also creating certainty for both aboriginal governments and industry. Clear guidelines assist all the players in ensuring and attaining meaningful engagement." •

### Modern Treaties

Source: STATISTICS CANADA



# Claiming Their Share

## Aboriginal corporations as potential development partners

In the sparsely-populated North, an area of such extreme climates that even some of the more experienced companies struggle to operate, home-grown corporations can be of invaluable assistance. Aboriginal corporations have recognized this economic opportunity, and are quickly raising their standards to fully exploit its potential.

In Nunavut, and to a lesser extent the Northwest Territories and Yukon, miners will typically be obliged to award a certain proportion of their contracts to aboriginal-owned corporations as part of commitments made in minerals rights deals. The purpose of this is undoubtedly a noble one, ensuring that local communities have a significant role to play in the region's burgeoning mining industry, but nonetheless it is increasingly becoming redundant. Aboriginal corporations are increasingly reaching a standard whereby they can provide valuable business partnership rather than burdensome contract obligation.

"[Aboriginal corporations] are profit-making enterprises that have a huge social value providing job opportunities, job modeling, and an insight for northern [aboriginal] people entering and participating in the world of business, mining in particular," said Nick Poushinsky, senior principal environmental management - Canada, Stantec.

Roy Erasmus, Jr., president and CEO of Det'on Cho Corp. in the Northwest Territories, said that these corporations can and are providing key support to the industry: "Currently, we have 20 companies within the corporation coming under three core businesses: mining-related products and services, human resources, and property development and management."

Services offered include catering and housekeeping for mines at Diavik and Snap Lake, as well as over 200 employees who operate the Diavik open pit. With a key concern of many mining companies in the region being a lack of skilled labor, as well as national predictions of a looming labor shortage, these corporations can be a key partner to the mining industry.

Robert Johnson, former general manager of Aboriginal Engineering Ltd., said: "Our

workers take pride in their investment of cleaning up of the lands. Their parents saw the impact of mining to the environment; their children are now taking ownership of the work they do as it presents an investment by putting right the damage to the environment and reclaiming the land they believe they own. It also presents employment and training opportunities."

There are added benefits to partnering with aboriginal corporations, in addition to the high-quality services provided. For some, these partnerships can act as social permits. Chief Simon Mervyn, Sr, of the Nacho Nyak Dun, Council of First Nations in Yukon, explained: "we welcome industry and business to our traditional territory, we only ask that we be involved from the ground up in the development of projects and that our rights and titles be respected."

While some past cases have soured these partnerships, many mining companies are now ensuring they engage with local partners and good examples of partnership are emerging. Clynton Nauman, president and CEO, Alexco Resource Corp., for example, has enjoyed a productive partnership with the Nacho Nyak Dun. "It has been a particularly good relationship [with the Nacho Nyak Dun]... The Nacho Nyak Dun are actually participant in the two biggest contracts we have in the region; the mining and catering contracts in the district."

SNC-Lavalin Group Inc. has worked on many of the northern mine sites, including Diavik, and moved early to build joint ventures with aboriginal corporations. "One of many highlights of [the Diavik] project was the development of an aboriginal joint venture and strong working relationship with Nishi Khon, and we are now carrying out spin-off work through this joint venture. In the early days of northern project development, aboriginal and First Nations corporations were few in numbers. This has now changed with aboriginal and First Nations communities keen to participate in the development of responsible mining in Canada's North by working with companies to advance opportunities, education, and work skills for their people" said Dale

Clarke, senior vice president, global mining and metallurgy for SNC-Lavalin.

Working with First Nation groups goes beyond fulfilling their client's obligations, argues Clarke: "SNC-Lavalin wants to promote the advancement of First Nation education and economic development and we prefer to partner with a mining company who has the same mindset as ourselves where First Nation communities are concerned."

Even outside the framework of aboriginal corporations, however, the local communities of Canada's North provide business potential that companies cannot afford to ignore. With 85% of Nunavut's population being of aboriginal groups, along with 50% in the Northwest Territories and 25% in Yukon, it is these people who provide the most likely workforce for any operation.

These populations are some of the youngest in Canada, often closest to the mines and a key source of untapped labor, but some suggest that it is necessary for both industry and government to work together to ensure this demographic is properly prepared to enter the work force. Chief Mervyn said: "first Nations are having great difficulty convincing governments that there is a need in Yukon for classes and skills to ensure our children have a balanced and adequate education and are better prepared to enter this work force."

"The training and development of the Tlicho people over the last 20 years, from basic living to an industry leader, should be used as a model globally and championed by the corporations who put forward the financing for opening the mines," said Robert Johnson.

While often a challenge to achieve, local hire initiatives and a social permit can bring extensive benefits to a project. "It is always a win for a company to have local support as there are so many good projects out there that, without a community's support, will never succeed. Companies will learn quickly that northern businesses have much to offer," said Alan Lebedoff, CEO, ALX Exploration Services. This may also increase a project's chances of success from a regulatory and permit-

ting perspective. "Our operation has a lot of local content; this year our staff consist of approximately 75% First Nations; and many of our suppliers are also based in Yukon. This makes governments more favorable to mining projects that subcontract us," said Shaun Rudolph, president, Cobalt Construction Inc.

This acknowledgement and respect serves another purpose; forming a good opinion of the mining industry in the minds of the people that may well support and drive it in the future. "By 2015 the First Nations workforce will be 50% to 60% at all entry-level positions in Canada's North and it is important that everyone operating in Canada's North be aware of this," said Ivor MacGregor, vice president, remote sites—western Canada, Sodexo, which has more than 418,000 employees around the world focused on site maintenance and support. As the territories' mining industry continues to draw international attention, it will be this local engagement that may makes or breaks new projects. This will also carry over into the southern service sector seeking to set its footprint in the North. Christopher Reynolds, environmental services sub-sector lead, aboriginal partnerships at Stantec, said: "Stantec's growth in the North will be via its partnership with First Nations communities and governments." Indeed, so recognized is the importance of

local projects that companies are quick not just to point out token efforts, but explain how they have done beyond it. "Sodexo has been heavily involved in the aboriginal aspect for many years with 35 active partnerships and we may very well be a pioneer in this marketplace in this regard. Some of our competitors have partnerships but no projects, whereas we have criteria in place to ensure our partnerships are viable and contain active projects," said Ivor MacGregor, vice president, remote sites - western Canada, Sodexo Canada. What is particularly encouraging is that those aboriginal-owned corporations that have achieved success are still looking back to assist their earlier-stage counterparts. Nuna Logistics is a 51% Inuit-owned service provider focused originally on the Northwest Territories and Nunavut and successful enough to have been involved in providing various support functions for almost every diamond project developed in northern Canada, including BHP Billiton's EKATI diamond mine and Rio Tinto's Diavik diamond mine.

Yet while the quality of their service offerings, which range from construction to exploration services to care and maintenance, is high enough to make them industry forerunners in their own right, they remain dedicated to their Inuit roots and continue to partner with other aboriginal

corporations. "Nuna Logistics is looking to continue its policy of increasing partnerships with Aboriginal corporations. There are partnership opportunities in Ontario. We are also looking at providing opportunities for other Inuit businesses to bid on larger projects, for example, we have established Kivalliq Services Limited, a consortium of three successful Inuit businesses in the Kivalliq region of Nunavut, who is currently carrying out road construction on the Meliadine project for Agnico-Eagle," explained Grant Pearson, Vice President Business Development, Nuna Logistics Limited, Nuna Group of Companies.

Nuna Logistics also offer training services to companies: they are one of the first groups in Canada to introduce a mobile training simulator and customize it for easy transportation to mine sites, yet have not simply used this expertise for profit. "During our community visits when we start a project, our goal is to give a training overview to the local communities of the culture and equipment of mining. Nuna is currently developing a program to present to Grade Ten students to outline the opportunities that exist in the mining industry within Nuna Logistics and to encourage them to stay in school," said Pearson. The skills and partners required by the mining industry are available, for those willing to reach out and engage them. •

## Interview with Roy Erasmus, Jr.

President and CEO, Det'on Cho Corp.

### What have been the key challenges of being based in the Northwest Territories?

Being based in the North, it is a challenge competing with southern companies. In the past junior companies coming to the NWT would come with the mindset that they could direct who would carry out their work, arguably favoring southern companies. This is beginning to change and more consideration is being given to ensuring that First Nations benefit from mining activities. The three diamond

mines have been very good at utilizing local community facilities. Historically, northern communities have not benefited from mining spin-offs, for example, the local First Nations Yellowknives Dene received very little benefit from the activities of the Giant Gold Mine; the First Nations' land occupied by the mine was prime grazing land; it is now waste and contaminated underground with 237,000 mt of arsenic trioxide with a clean-up cost of \$500 million.

### How do you view the willingness of mining companies to engage with Det'on Cho?

Det'on Cho Corporation has reached out to mining companies to engage in consultation of proposed mining developments, not only from a service viewpoint but also from an understanding of its cultural sites. First Nations know and understand what

mining is about and does to the land; there is a fine line between development and maintaining the environment.

### Are there plans to add new services; and what is the vision for Det'on Cho Corporation?

Det'on Cho Corporation is always seeking new areas of opportunity. Remote-control mining is a technology that would be of great interest to the Corporation. Our vision is to continue to grow sustainable businesses, help First Nations to become self-sustaining, and look beyond the Northwest Territories for growth opportunities. Never under-estimate the powers of the local communities to work with you and service your projects. •

# Interview with Cathy Towtongie

PRESIDENT, NUNAVUT TUNNGAVIK INC.

## Can you give a brief overview of Nunavut Tunngavik Inc, and the Nunavut Land Claims Agreement under which the organization gained its lands?

There is a misconception that Nunavut is one entity, but it is two; the Nunavut Land Claims deal for Inuit only, which is held in NTI, and the public Nunavut Government which operate like a territorial government for all Nunavut residents. Nunavut Tunngavik (NTI) would not settle a land deal until there was a public government in place. We were the organization that divided the territories above the treeline; the Inuit own land the size of Germany. During the negotiations, the Inuit hired geologist expertise with the mandate to determine the mineral-rich capacity of its lands. In 1997 the NTI board of directors passed a motion to support the development of mineral resources in Nunavut; this included long-term social and economic benefit for the Inuit, consistent with protecting the eco-system. This NTI mining policy is now being implemented and has a royalty scheme on Inuit-owned land. We have both a very stable NTI mining policy and political environment.

## Since establishment, has the NTI attracted the volume of mining investment to the territory you had hoped for?

The volume of mining investment has been beyond our expectations; we are the last mining frontier in the world. As it stands the Nunavut Land Claims Agreement is moving into a new phase. We also have a revenue resource sharing policy, enabling the Inuit to benefit from a 12% net profit royalty paid under the Inuit Owned Lands Mineral Agreement. Under NTI there are three regional Inuit associations responsible for negotiating Inuit Impact and Benefits Agreements (IIBA) for surface land; some surface lands of which NTI is responsible for will belong to our Inuit who, via the regional association, will receive royalties from a mine and benefit in terms of employment and business

opportunities. Since 1997 we have experienced an acceleration of interest in the mining development of Inuit-owned land.

## Do you feel that the mining industry understands the opportunities and challenges of working in Nunavut on NTI owned land?

The mining industry is aware of the NTI mining policy and what the expectations of a mining company should be if they proceed with developing in Nunavut. The NTI has stressed to the Nunavut Leadership Forum and to both the government of Nunavut and Canada that the mining industry alone cannot take on the capex of infrastructure. The Government of Canada has the responsibility to ensure that the infrastructure is carried as a function of government and developed in Nunavut; currently, the NTI and the mining industry are ensuring that the infrastructure of Nunavut is in the forefront of the authorities' minds and a priority for forward planning. Nunavut needs ports, docking facilities, and in the next five to 10 years energy will be a major issue. There is a plan to build an all-weather road linking northern Manitoba to Kivalliq; the Nunavut Impact Review Board is currently carrying out the environmental assessment for companies involved in this project.

## Do you think the Inuit people have a fair understanding and realistic expectations of what mining companies can do for them?

Historically there have been mines in Nunavut: for example, the Rankin Inlet nickel mine, Baffin region; and the Nanisivik zinc-lead High Arctic mine; both projects were prior to the Land Claims Agreement, but now with these agreement policies in place we expect Inuit to benefit from the mining development occurring on their land. We do not expect the mining industry to take away the wealth of our lands without the Inuit benefiting. Currently, it is a development process of expectation levels; we are dealing with an ancient culture

that is entering economic survival, but the challenge is achieving the right balance between the two and will be answered in the next decade. Our dialects will remain the same, but a common written computer language will be introduced for the Inuits accommodating the influx of mining companies. The fear amongst some Inuit in Nunavut is becoming the minority with the proposed mining development.

## What are your views on the federal government's breach of the NLCA; and will NTI continue its quest for justice?

I am also the co-chair for Land Claims Coalition across Canada with 23 other Aboriginal groups who have five treaties; the mentality of the Government of Nunavut is that the treaty we signed is with the old Department of Indian and Northern Affairs or the Department of Fisheries. These agreements are with the whole Government of Canada, not a particular department; when NTI took the Government of Canada to court the ruling was that we were able to prove that once the signing ceremonies were over the Government of Canada had no implementation plan in place. It was required by the Nunavut Land Claims Agreement to put a monitoring plan in place within the first ten year planning period, 1993 to 2003. The court agreed with NTI and awarded NTI \$14.8 million in damages plus costs, on a breach of Article 23 of the NLCA where it states that the Inuits should be trained and where there are 100 jobs within the government 85% to be Inuit filled; but by keeping Inuits untrained, uneducated, and flying in southern workers paying for their hotels and airfares, it is costing vast amounts. In 2003 PWC estimated that it cost the cost pa was \$123 million between both levels of government. The government has appealed the decision but NTI is optimistic it will win the lawsuit; we are committed to this cause. We have honored our side of the Land Claims Agreement and are awaiting for the government to reciprocate in order to move forward. •

# Interview with Dale Clarke

SENIOR VICE PRESIDENT, GLOBAL MINING AND METALLURGY,  
SNC-LAVALIN INC.



## Can you give a brief overview of SNC-Lavalin and a more in-depth review of your mining and metallurgy division?

SNC-Lavalin is a global engineering and construction company with four main business sectors: mining and metallurgy; infrastructure; power; hydrocarbons and chemicals. In addition to these main business sectors, we also invest in infrastructure, typically via PPPs, and have other divisions that specialize in operations and maintenance, environmental services, and transportation. SNC-Lavalin has a diverse capacity within mining and metallurgy; we do not focus on one or two specific commodities; we have expertise in multiple, global commodities. We have a total global workforce of over 30,000, of which 6,500 personnel are in our mining and metallurgy team sitting in offices globally. We place a very strong emphasis on HSEC, and pride ourselves on our integrity and relationships with clients who share those values. Our clients range from some of the largest companies in the industry, right down to junior exploration companies and we offer a full range of services within the mining and metallurgy sector, typically on an EPCM or EPC basis. In addition to these conventional study, EPC or EPCM services, within the mining and metallurgy business unit, we also have a group called Sustainable Mine Development working with mine operations rather than greenfield and early stage projects. That group assists with tailings management, closure, reclamation and operational support such as operator training. SNC-Lavalin also has an environmental group working closely with mining and metallurgy; the group gets involved in the early stage of projects with environmental impact statements and permitting.

## Can you tell us about a northern project you are particularly proud of?

One of our projects in the northern territories that we are proud of is Diavik Di-

among Mine; one of the largest mines in the Northwest Territories. It was very challenging, particularly when it came to the logistics of transporting materials on arctic roads during a short winter weather window. One of many highlights of that project was the development of an Aboriginal joint venture, and strong working relationship, with Nishi Khon, and we are now carrying out spin-off work through this joint venture. That's one of our key priorities in the region, we are always seeking opportunities to directly employ, joint venture with or contract with Aboriginal and First Nations corporations in the north.

## Is it difficult to find Aboriginal corporations to joint venture with and is it expected that service companies enter into such JVs in the north?

In the early days of northern project development, Aboriginal and First Nations corporations were few in numbers. This has now changed with Aboriginal and First Nations communities keen to participate in the development of responsible mining in Canada's north by working with companies to advance opportunities, education, and work skills for their people. SNC-Lavalin wants to promote the advancement of Aboriginal education and economic development and we prefer to partner with a mining company who has the same mindset as ourselves where Aboriginal communities are concerned.

We also have a global initiative called LRDI (local resource development initiative) that we are quite proud of. Initially designed to train and employ local people on our overseas projects in under-developed countries, we are now implementing this initiative in the northern territories. This initiative allows us to create a database of all the local people and communities around the mines, carrying out preliminary training, and form a labor pool, which we make available to sub-contractors and mine operators.

## What particular challenges do you face working in the north compared to the south?

Geographically speaking, permafrost is a major consideration when building structures in the north as heat transfer will result in instability. Additionally, the psychological impact of working through long winter periods with limited natural daylight should not be underestimated. Then there are other considerations to take into account, such as short construction windows making for higher cost; batching and pouring concrete in the extreme cold of the north can be very costly. Costs and schedule have to be strictly managed.

Taking two identical mine projects, the productivity for the northern project would not be as high as that of the south, could take longer, and cost substantially more due to the schedule and construction conditions.

## Where would you hope to see the mining and metallurgy division of SNC-Lavalin in three to four years' time?

SNC-Lavalin has various commodities that we work in, some more than others, and within some of these commodities we are working primarily for small to medium sized clients. Our medium-to-long-term vision is to be the global leader for E&C mandates in all the major commodities; arguably, in some of those commodities we are already the leader. We are re-organizing ourselves to be more commodity-focused to accommodate our major clients. Many of our large clients, such as Xstrata, BHP Billiton, and Rio Tinto, are commodity-structured and it makes sense to structure SNC-Lavalin along similar lines. With our commodity focus we can ensure our business lines are aligned with our clients and we can focus on providing highest associated value. •





DIAVIK DIAMOND MINE, CANADA



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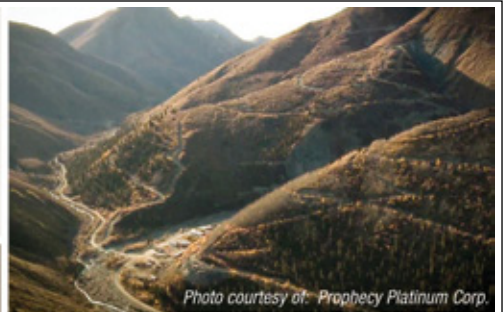
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*Photo courtesy of: Prophecy Platinum Corp.*



*Photo courtesy of: Yukon Zinc Corp.*



*Photo courtesy of: Selwyn Resources Ltd.*

# Interview with D. Brent Thompson

SENIOR VICE PRESIDENT, MINING AND MINERALS, TETRA TECH



**Can you give a brief outline of Tetra Tech's mining history in Canada's north?**

Tetra Tech has been in Canada's northern mining industry for 60 years, an area where we have always been strong and have a great belief in. We have expanded with other partners, growing the Tetra Tech family and our mining business.

Some of our early projects were carried out in the far north with the federal government setting up the DEW Line (Distant Early Warning system), and the Northwest Territories Power Corporation working on their fuel storage facilities. Tetra Tech has also been involved with engineering support in the north for power projects, and has had a long history of working on general infrastructure at Rankin Inlet and the Port of Churchill.

In Nunavut over the last 10 to 15 years we have been working on projects which include: Sabina, the Hackett River, Izok Lake, and Lupin; some have changed hands up to seven times, but Tetra Tech has been a continuous participant in these projects.

**Can you expand on Tetra Tech's strategy for servicing the north, and how you have seen your business grow in this region?**

Tetra Tech work with clients to help them realize their projects; a good example is Yukon Zinc; we optimized their feasibility study and from that they secured financing from a Chinese partner to build a mine during the global financial crisis. Tetra Tech is currently working on multiple projects in the north including a key iron ore project in Nunavut for Advanced Explorations Inc. Our sister company, EBA Engineering Consultants Ltd., has been involved with environmental permitting in the north for the last 10 to 20 years; currently, they are working as a permitting specialist on a project with Avalon Rare Metals, Advanced Explorations and many others. Arguably, Tetra Tech and its sister companies, have one of the strongest resumes in the north for mining.

**Can you highlight some of the key challenges of working in Canada's north?**

The general challenges of working in the north are lack of infrastructure, logistics, sourcing energy, and too much/too little water.

With climate change there is a shorter usage period for the winter roads; these roads are relied upon by companies to transport equipment and materials to site. EBA essentially wrote the book for the government on designing winter roads in the north

The duty to consult with First Nations on the sensitive environmental eco-system issues can slow project progress. Once a mine has been developed, sourcing the workforce is a challenge.

**Is there enough skilled labor to service the projects coming on-stream in Canada's North; if so, what strategy does Tetra Tech has in place to mitigate this shortage?**

Going forward, the labor issue would be remedied by engaging First Nations; a resource that is not currently being fully leveraged. The mining industry needs to engage with First Nations to advance mining projects. It will be seven to 10 years before these mines come online. Many of our clients are taking a pro-active stance with partnering with the First Nations to be ready for these projects.

From our perspective, Tetra Tech invests in training for First Nations; the statement of our commitment to the local community is demonstrated by the presence of offices in Yellowknife, Whitehorse, and Inuvik. Employing from the local community is the formula for success; it overcomes the problem of cultural change which would arguably occur if the workforce was drawn from outside the area.

**Can you outline some of the key infrastructure projects you are involved with?**

The Achilles' heel of Canada's mining north is its infrastructure; it is a major constraint. Any significant infrastructure

development is led by mining operations. Tetra Tech's work relates to winter roads, and electrification of mine sites which is fed to communities in the vicinity. Canadians are good at understanding how to leverage the maximum from capital invested in mining and other developments.

Whilst being engaged by Alexco on their Bellekeno project, we worked with Yukon Energy Corporation to provide them with expertise to bring power to the mines. We are also involved in the north with green technology, such as wind turbines.

**Can you give details of your CSR initiatives in the north and your engagement with local First Nations communities?**

A good illustration of our engagement with First Nations was a recent invitation for First Nation speakers to address our corporate meeting outlining their culture and areas of sensitivity. Working in the north, it is essential to engage with First Nations who have the claims to the land, and part of our CSR initiative is cultural sensitivity training for our staff.

Tetra Tech, as a company, has a global policy for CSR initiatives.

What is the vision for Tetra Tech in Canada's north, and have you a final message for our readers?

Canada's north is still considered to be a frontier for mining and offers wonderful opportunities; it is essential that business in the north is conducted in an environmentally sensitive fashion and that First Nations' culture is acknowledged. The skill set is there, and we can make it happen.

The government should support the north's infrastructure to hasten the unlocking of the region's resource potential. Tetra Tech has the expertise to continue to be the engineer of choice in Canada and around the Pole. •

# Interview with Kitnuna Corp.

## Could you tell us a bit about the history of Kitnuna Corp.?

The company was originally established in 1961 in Cambridge Bay, and developed in 2000 to a limited company, which was named Kitnuna Corporation. Originally the company focused on civil construction, fuel distribution and key northern infrastructure projects: Kitnuna has been heavily involved in the exploration of mines, oil and gas. This expanded into mine reclamation in the mid 1990s. Kitnuna has provided logistic services, camp services, equipment, guides and all the manpower you would need on such a project. We have helped to establish exploration camps in very remote areas, developing unique Northern methods, for example creating a winter road and transporting goods across ice on sleighs pulled by dozers. We bring exploration companies into sites and also assist in the take down once exploration projects are completed. One of the four subsidiaries, Kitnuna Projects Inc. is a project management, construction, remediation company; Kitnuna Projects is heavily focused on the mining industry. The components of Kitnuna Corporation are Kitnuna Petroleum and Kitnuna Expediting, which includes a building supply store in Cambridge Bay.

## Can you give us an indication of the unique niche services you offer and some that have helped evolve the mining industry here?

We really pride ourselves on our heavy equipment training abilities. In the harshest temperatures, we often get requests from mining or exploration juniors to transport equipment and materials to their sites. The only access to their lands is by ice and snow and we have for many years, with companies such as Newmont, provided this. Kitnuna has invested in specialized equipment to transport these goods to mine sites. We have fuel tanks on skis, cargo sleighs, low ground pressure tractors and so forth. Kitnuna has also built ice strips capable of landing Hercules aircraft. The majority of our work with mining companies has taken place in the winter. We have expertise with ice profiling, ensuring that the ice thickness over the ocean, lakes and other bodies of water is thick enough to handle the equipment that we are moving. We start planning mid-March for these type of operations and we are generally on the frozen ocean by the first of April and all transportation is done by the end of April.

## What kind of efforts is Kitnuna Corporation engaging in with the local communities and what training initiatives are you implementing?

Kitnuna works hard to develop our beneficiary employees in terms of training and job advancement. One of our shareholders, Kitikmeot Inuit Association, invested in a heavy equipment simulator for truck drivers which is based in our head office at Cambridge Bay. We partnered with KIA in sponsoring a heavy

equipment operators course in Cambridge Bay and taught 12 beneficiaries how to operate dozers, graders, excavators. They all received their Class 3 licenses. We employed four of the graduates from the course on the civil project they trained on and hired another as a full-time truck driver for Kitnuna Petroleum. In addition we hold safety training every year. We also have a requirement on our DEW Line Remediation projects for someone who is HAZWOPER certified. We mentor and coach our staff. We will have two apprentices in 2013, a carpenter and mechanic. Two beneficiary foremen will be speaking in the schools.

## Do you have any final message for our readers?

The scope of work in the mining industry is not fully understood by the future workers. There is so much more than equipment operators, such as administration, mill technicians, surveyors and other work that can translate into a successful and rewarding career in other industries and businesses anywhere in Canada. At Kitnuna, we are committed to developing our people so they believe in themselves, to recognize and seize opportunities as their future unfolds. •

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# Yukon: The Modern Day Klondike Gold Rush

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“Key challenges of Yukon are the vast area that it covers and small population. Operations are difficult; it is an advantage that our Whitehorse staff are predominantly Yukoners and understand the requirements to operate and live in Yukon, and the importance of positive engagement with First Nations. Any mining company coming to Yukon has to be aware of three things: water, wildlife, and access to sites; environmental regulatory-bars are set very high in these three categories and require special focus. Attention has to be given to herds animals and the locations of their zones, and in some situations these have to be strategically avoided leading to more challenging construction of access routes to mine properties. Yukon River is a salmon-bearing river and there is substantial focus to ensure it remains so. The river drains the vast majority of Yukon; any major mine will be located near to its tributaries and effluent may find its way into the Yukon River.”

*- Steven Bartsch, Yukon Area Manager,  
Associated Engineering Ltd*

# A Golden Nugget

## The transformation of Yukon into a mining hub

Yukon was thrust into the eye of the global mining community in 1896, when gold from discoveries along the Klondike River arrived in the USA, capturing media attention and sparking the Klondike Gold Rush. Yet this recognition of Yukon's potential was short-lived; with unusual geological structures and difficult conditions, Yukon's riches eluded most of the 30,000 to 40,000 hopeful prospectors that traveled to the region, and by 1899 the excitement had faded.

Yet the resources remained, for the most part unexplored. Today, Yukon has more than 80 mineral resource deposits and 2,600 mineral occurrences, yet these are all to be found in an area covering a mere 3.6% of Yukon's total area. Perhaps due to the same challenging climate that saw the failure of so many 19th century hopefuls, these deposits have never received the attention that has been lavished on areas of similar promise elsewhere in the world. The Marmato district of Mexico has been mined for 500 years. New South Wales in Australia has seen a steady flow of exploration activity since the first gold discovery in 1851. Yukon's neighbor, British Columbia, has one of the most diverse and developed mining industries in the world.

Yukon itself, rather neglected, only saw its first commercial mine open in 1906. For much of the 1990s and early 2000s the territory experienced declining interest and little activity. A huge swathe of the far northern region has still not been touched by modern exploration.

Nonetheless, things are changing. In 2005 Yukon had one prospecting lease staked and 188 quartz claims staked. In

the year prior to March 2008 there were 110 prospecting claims staked and just short of 10,000 quartz claims. Not even the global economic downturn slowed the momentum, with an uninterrupted growth leading to 23,660 quartz claims staked between April 2009 and March 2010. A total of 114,587 new claims were staked in 2011, 38% higher than the previous record of 83,161 in 2010.

Three major mines have been developed in five years (the only place in the Western world to have seen such progress), making this an international destination for prospectors, miners and developers. While it is usually a mistake to attribute any turnaround to a single reason, it would be difficult to underestimate the impact of the 2003 decision to grant the Yukon government full responsibility for mineral exploration and mining, cutting out the second-tier federal government that has caused so many problems in provinces such as British Columbia.

The simpler permitting process that resulted from this was followed by various other government initiatives, such as the amendments to the Quartz Mining Act in 2008 that lowered exploration costs and ensured that mine development royalty rates remained competitive. Combined with federal flow-through shares, fuel tax exemptions and rebates and Yukon Mining Incentives Program which provides funds for prospectors and it is easy to see why Yukon made it into the top 10 of the Fraser Institute rankings of mining companies' perceptions of the world's jurisdictions.

The Yukon government has continued with its proactive approach towards the industry, most recently with the continuing consultations on the Peel Watershed land use plan, governing land use in an environmentally and culturally sensitive area of northern Yukon. While some in the mineral industry may not be happy with the 80% of the land now off-limits for new exploration or development activities, the government has ensured that existing projects in this area can continue to operate, and those companies that hold pre-existing sites

or begin operations in the 20% of the Peel Watershed area not restricted can be assured that they will not incur the anger of local communities; the final plan has been through an extensive process of garnering feedback from Yukoners.

"Yukon government has taken steps to help the industry: this includes the Yukon Mining Incentive Program which financially assists early stage grassroots exploration, and has led to a number of major recent discoveries, for example, the White Gold deposit," said Hon. Brad Cathers, Minister of Energy, Mines and Resources, Government of Yukon.

"We are the only jurisdiction that has that stream-lined regulatory and assessment process and so we have the ability to review projects on their merits within a shorter time-frame than other jurisdictions. Our royalty system is clearly defined and legislated, placing us competitively within the Canadian jurisdictions for projects that achieve development."

The mining industry in Yukon is suffering from the current investment climate to the same extent as any other jurisdiction; perhaps surprisingly, as even the economic crisis of 2008 and 2009 did little to halt the rush; although exploration spending did fall significantly, the mining and oil and gas extraction sector's contribution to Yukon's GDP expand by 30.6%, representing an increase of \$27.2 million.

Yet predictions for 2012 indicate that, while the value of mineral production will have continued its upward trend, helped by the start of commercial production at Yukon Zinc's Wolverine zinc silver mine, exploration expenditure will have suffered. The Yukon government is estimating exploration spending in 2012 to total around \$160 million to \$200 million; a substantial drop from the \$307 million spent in 2011.

Some challenges are also yet to be fully solved. With partially developed infrastructure, largely settled land claims, a government that is openly supportive of mining development and a mining framework which makes it the easiest of the three territories to operate in, the issue of power looms over the head of

those hoping to advance their mines and remains the key focus of the mining agenda.

A lack of skilled labor, complications related to short operating seasons and a lack of infrastructure in certain regions of the territory echo those across the North. "It is not the lack of resource discovery that has resulted in many investors being weary of its environment, but amongst other reasons it is due to the industry being unable to keep pace with the demand, i.e. laboratory turn-around time affecting the limited four-month window to complete meaningful work," explained Darcy Krohman, president and CEO at Precipitate Gold Corp.

Even with these challenges, neighboring territories look to Yukon as a model to emulate. Tom Hoefer, executive director, Northwest Territories and Nunavut Chamber of Mines, said: "the Yukon government was very aggressive about marketing themselves internationally, with the government taking the initiative to take trips to Europe and China in order to promote the territory's resources."

Yukon's geographical location helps in this regard. Brent Thompson, senior vice president, mining and minerals, Tetra Tech said: "Tetra Tech work with clients to help them realize their projects; a good example is Yukon Zinc; we optimized their feasibility study and from that they secured financing from a Chinese partner to build a mine during the global financial crisis."

"A lot of our Chinese clients are seriously looking at getting involved in the North. One reason they are attracted to Yukon in particular is because of its location in relation to China," said Brian Abraham, O.C., partner, Fraser Milner Casgrain LLP, referring to its strategic shipping transport route.

Despite the difficulties of the current investment climate, and the challenges inherent to the Canada's Far North in general and Yukon in particular, there is no doubt that the last decade has seen a remarkable transformation in the fortunes of Yukon's mineral industry. International eyes are, for the first time since 1899, once again focused on Yukon. •

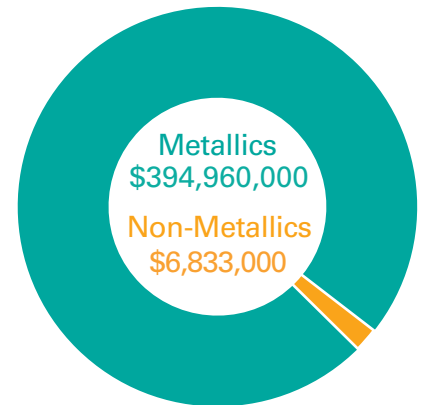
## Yukon at a Glance

Source: CIA World Factbook

**Population:** 33,897 (2011)  
**Capital:** Whitehorse  
**Head of Government:** Premier Darrell Pasloski  
**Gross Territory Product:** C\$2.660 billion (2011)  
**GTP per Capita:** C\$64,649 (2010)  
**Economic Sector Breakdown:** Mining, tourism, manufacturing, hydroelectricity  
**Total area:** 482,443 km<sup>2</sup>  
**Fraser Institute Ranking 2011/2012:** 10th  
**Value of Mineral Production 2011:** \$401,794,000

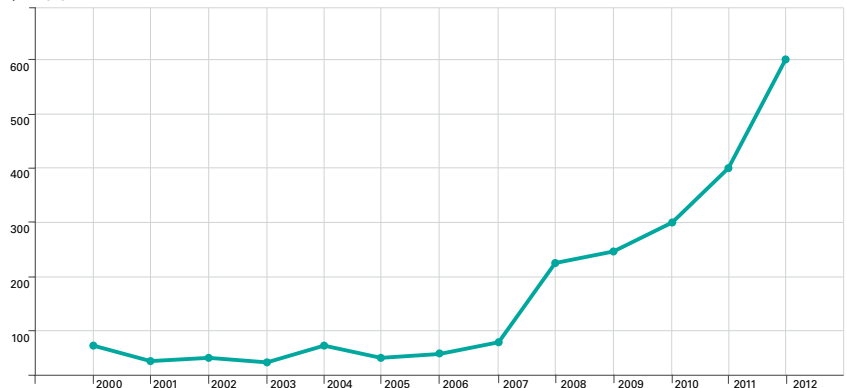
## Mineral Production in Yukon by Type (2011)

Source: NATURAL RESOURCES CANADA



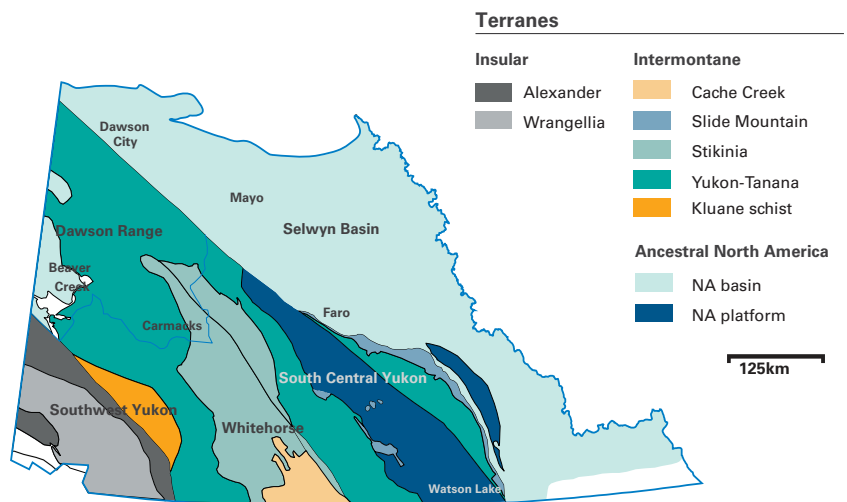
## Value of Mineral Production in Yukon

Source: Natural Resources Canada  
\$ millions



## Geological Trends in Yukon

Source: Yukon Geological Survey



# Interview with Honorable Darrell Pasloski

PREMIER, GOVERNMENT OF YUKON

**What continues to make Yukon an appealing international destination for mining exploration companies, and are there any particular regions of Yukon that you are trying to promote?**

Mining has been the back-bone of the Yukon economy since the Klondike Gold Rush of the late 1800s. There are a number of factors that have contributed to the evolution of success for Yukon as a mining destination: devolution from Ottawa, (arguably evolution for Yukon), we have now assumed the responsibility for licensing and regulations for land and water in Yukon, and have good stable governance; 11 of the 14 First Nations in Yukon have signed the Umbrella Final Agreement; and in addition we have Yukon Environmental and Socio-economic Assessment Act (YESAA), an excellent process that affords time lines giving more certainty to investors. All the steps of Yukon's regulatory process for mining are clearly defined from staking a claim through to production, on to reclamation. My colleagues in the Northwest Territories and Nunavut look upon Yukon as a model for when they achieve devolution.

**Has the 40% reduction in mining exploration activity in Yukon in 2012 reflected in the local economy, and is the reduction due to the current lull in the junior exploration market in Canada, or are there other issues at hand?**

2011 was unprecedented, being in excess of \$300 million in exploration spending; the previous high had been in 2010 with \$157 million. 2012 will be down from 2011's record figure, but historically will still be one of the better years. Yukon is carrying on with its growth, continuing to see an increase in housing and net increases in immigration, reflecting the fact that it is not just mining contributing to Yukon's economy; having eleven self-governing First Nations creates and promotes economic activity itself. Yukon's diversified economy

ensures economic stability, even when cyclical declines in mineral exploration do inevitably occur. Currently, junior exploration companies are experiencing difficulty in securing investment in the current global economic climate; however, there are aggressive mining companies that are defining their resources to move forward to production, a number of which we see in Yukon.

**What initiatives is Yukon government taking to ensure that the environment remains in its current pristine condition whilst still promoting Yukon as a mining destination?**

Important to the environment is the 2006 Yukon Mine Reclamation and Closure Policy; subsequent to that is the financial strategy delineating the financial and technical guidelines required for mine reclamation and closure. The Yukon government continues to work with the mining industry, providing companies with facilitators to assist them through the assessment and regulatory processes: Yukon has a new placer mining regime ensuring opportunities for the placer industry, along with innovative fish habitat management for the protection of fish habitats.

**What initiatives does Yukon government have in place to ensure that First Nations have the skills and training necessary to take on more skilled labor and leadership roles in the emerging mining industry?**

11 of the 14 Yukon First Nations have self-government and modern day treaties; this ensures they are partners in our economy, and some of their engagement is mandated through these agreements, for example, full participation in YESAB, plus Renewable Resources Councils, and the Fish and Wildlife Management Board, ensures that First Nations are engaged in the development of the mining industry.



In terms of training, there are facilities at Yukon Mine Training Association, and Yukon College, leading to employment and business opportunities; in addition, most First Nations have development corporations. A majority of exploration companies have realized that if they are interested in an area that is part of traditional lands, early engagement with First Nations will gain their support via an Impact Benefit Agreement, and will assist the development of the mining project.

**What is Yukon government doing to ensure that there is adequate power in place to support the growing mining industry?**

Two operating mines are currently on our electrical grid, Capstone and Alexco, and with the demand from commercial and residential areas we have reached our capacity. Short- to mid-term, we are moving forward with the independent power producers policy, with net metering, and, as a transitional fuel, with the use of LNG; the Yukon government is putting in place the legislation and regulations for LNG. The cost of diesel for a mining company is 35 cents to 38 cents per kw; LNG would reduce the cost to 14 cents to 15 cents per kw; a significant saving for the mining company. We have recently linked up two grids with the extension from Carmacks to Pelly Crossing, then on to Stewart Crossing. More hydro capacity has been added with a third wheel at Aishihik dam at Aishihik Lake, plus what has been deemed the Mayo B project, an enhancement to the existing Mayo Dam, provides an additional 10 megawatts to 20 megawatts power. Long term we would like to enhance our hydro capacity within Yukon, and link up and sell excess power to British Columbia and/or Alaska. •



# Interview with Honorable Brad Cathers

GOVERNMENT HOUSE LEADER, MINISTER OF ENERGY, MINES  
AND RESOURCES, YUKON DEVELOPMENT CORPORATION/YUKON  
ENERGY CORPORATION - GOVERNMENT OF YUKON

## From a geological and exploration perspective, what makes Yukon a unique and appealing mining destination?

There are a number of factors: Yukon has a wealth of natural resources, and has had a significant amount of investment by both territorial and federal governments in geoscience programs, giving companies a base for a better understanding of Yukon's geological history of areas for early stage exploration programs. Yukon government has taken steps to help the industry: this includes the Yukon Mining Incentive Program which financially assists early stage grassroots exploration, and has led to a number of major recent discoveries, for example, the White Gold deposit. We have a single environmental and socio-economic assessment process, unique within Canada. We are the only jurisdiction that has that stream-lined regulatory and assessment process and so we have the ability to review projects on their merits within a shorter time-frame than other jurisdictions. Our royalty system is clearly defined and legislated, placing us competitively within the Canadian jurisdictions for projects that achieve development. Yukon is approximately 4.3% of Canada's land mass, about the size of Newfoundland and Labrador, covering an area 483,000 sq. km. with a population of 36,000, but in comparison to other northern jurisdictions we have a well developed highway system and infrastructure that assists in both accessing deposits and serving the deposit sites.

## What are the key initiatives Yukon government is taking on its legal and regulatory framework to ensure Yukon remains an attractive mining destination?

We have taken a number of steps including in 2008 when amendments were made to Yukon Quartz Mining Act to cap the royalty rates from their previous level making them competitive within Canadian

jurisdictions. Additionally, we made a number of administrative changes reducing the cost of mining exploration, i.e. allowing a claim tag to be purchased prior to going out in the field rather than after (as had previously been the case) and reducing the size of claim posts that had to be used. These, and other, changes would reduce the amount of flight time that companies would have to make to pursue exploration projects. Some prospectors have indicated that these administrative changes to the Quartz Mining Act resulted in up to a 50% reduction in the cost of doing exploration. Yukon is the only northern territory to achieve devolution granting it more control as a jurisdiction to make decisions in a timely manner that reflect the interests and opportunities of its territory and citizens. Arguably, we are the only jurisdiction in the western world that has permitted three major mines in the last five years. We also have a number of other projects in either the development or advanced stage of exploration which will be assessed within the defined time-lines of the federal legislation.

## Can you clarify the government's stance on the Peel Watershed and mining development in this region?

In the Peel Watershed area we are continuing to follow the process that is outlined within the Umbrella Final Agreement between Yukon, the federal government and First Nations, as it relates to regional land use planning. We are entering the final stages of the process, and in recent election campaigns, and subsequently, we made it clear that the final plan should respect all sectors of the economy including all existing interests and claims within the area, and should allow for reasonable access to mineral claims whilst respecting the impact any access can have on other users or interests. •



# YUKON

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## Come see us:

- ▶ **Alaska Miners Association  
2012 Annual Convention  
and Trade Show in  
Anchorage, Alaska  
November 6 to 9, 2012**
- ▶ **40th Yukon Geoscience  
Forum and Trade Show in  
Whitehorse, Yukon  
November 18 to 22, 2012**
- ▶ **Mineral Exploration  
Roundup 2013 in  
Vancouver,  
British Columbia  
January 28 to 31, 2013**
- ▶ **PDAC 2013 International  
Convention, Trade Show  
& Investors Exchange in  
Toronto, Ontario  
March 3 to 6, 2013**

**Yukon**  
Government

[MiningYukon.com](http://MiningYukon.com)

# Interview with Honorable Currie Dixon

MINISTER OF ENVIRONMENT AND ECONOMIC DEVELOPMENT,  
GOVERNMENT OF YUKON



## What continues to make Yukon an appealing international destination for international investors and exploration companies?

Yukon has a long mining history, which has been the backbone of its economy ever since the days of the Klondike Gold Rush. Yukon is synonymous with mining and has an incredible geology: base metals, precious metals, hard rock gold, placer gold, but still remains under-explored and unexplored. There are huge opportunities for early/advanced exploration companies and mining companies to come to Yukon and find new discoveries. Yukon is strategically located having access to the emerging markets in Asia, as well as the main stay of the United States; the ice-free year-round deep water port of Skagway with its ore-loading facilities is only two hours' drive from Whitehorse. There are two alternative ports to Skagway in close proximity to Yukon: Haines, Alaska, and Stewart, British Columbia, which are both looking to upgrade their facilities.

## Can you discuss some of the key partnerships that Yukon is participating in within the Territory and the kind of leadership role Yukon has in the region?

Yukon has unique government institutions with devolution, settled land claims, and a healthy royalty and taxation regime that allows and encourages business. Yukon was the first Territory to achieve devolution in northern Canada, and can provide leadership and assistance to our neighbor, the Northwest Territories, currently in devolution negotiations. We also work closely with Alaska, bilaterally and in multilateral institutions, one of which is the Pacific Northwest Economic Region, (PNWER). It is a non-partisan bi-national, public/private partnership in North America; Yukon currently holds the chair in PNWER Arctic Caucus, other members are

Alaska and the Northwest Territories. The Arctic Caucus enables us to share ideas and experiences, and collaborate on initiatives particular to our jurisdictions. Locally, Yukon is pro-active in its contact with stakeholders and mining companies to ensure they understand the opportunities in Yukon, how best to engage in Yukon with the government, regulators, environmental processes, and with First Nations. We are also actively engaged in events such as the Association for Mineral Exploration BC Roundup, and the Prospectors and Developers Association of Canada (PDAC) annual expo.

## How have we seen Yukon's business incentive program reflected in the mining industry and is there sufficient focus on local hire initiatives in the mining sector?

Our business incentive program is not in any way associated with mining; it is a program aimed at government contracts to encourage local hire. Road building, construction and building sectors would be eligible for this initiative. However, the Yukon government is always keen to ensure that Yukoners can participate in the growing economy in Yukon particularly in the natural resources and mining sector; it is a challenge to direct sufficient people to the industry. Labor supply to the mining sector is an issue; we engage with industry through the Yukon Mine Training Association to help address this problem. In addition, Yukon College is focused on mining, training Yukoners to participate in mining activities.

## How do you ensure that there is an adequate balance between local and international companies present to develop Yukon's mining industry?

Historically, Yukon has a healthy early stage prospector industry, but being a

large territory with a small population we need to source outside partners for investment and technical capacity to bring mining projects forward; we therefore see local exploration companies partnering with outside companies. A good example is the Wolverine Mine, Canada's first greenfield base metal mine brought forward with Chinese ownership.

## Are there any particular markets you will be focusing on in the future?

Asia is an important growing market for Yukon. Over the last several years Yukon has focused particularly on China where it has been successful in attracting investment in the mining, oil and gas industries, and other natural resource sectors. We annually attend the China Mining Conference and invite Chinese government and business representatives to Yukon. We continue to target the United States, an important market for us. The Yukon government participates in the Yukon Gold Mining Alliance, an industry-government partnership to promote investment in Yukon projects. Our participation includes accompanying Alliance members visiting financial centers in the United States and Europe. China is an important market for Yukon, as are the United States and Europe.

## Do you have a final message for the readers of Engineering & Mining Journal?

Yukon presents a tremendous opportunity to tap into an exciting geological area, supported by a stable government willing to work with the mining industry to bring projects forward. It also has a strong, fair regulatory regime, with a clear and simple environmental and socio-economic assessment process. Yukon is open for business. •

# Rules and Regulations

## An overview of the regulatory framework in Yukon

With a mining framework that is generally praised by those who operate in the territory, there are a number of key points that make Yukon such an attractive operational climate: devolution, speed of permitting and settled land claims.

"After working in many parts of the world, it is my view that the regulatory environment in Yukon is very good, easily understood, rigorous but with definitive timelines, and generally responsive to project pressures. Alexco would be the example of a company that was able to discover, prove a resource and move into a production within three years; there are very few places in the world where that can be done," said Clynton Nauman, president and CEO, Alexco Resource Corp.

Much of the ease of Yukon's current system dates to 2003, when Yukon took responsibility for mineral exploration and mining. Whereas companies in neighbouring British Columbia have long complained of a two-tier system that sees their project approved on a provincial level while held up at a federal level, the regulatory process in Yukon is contained within the territory. Since its establishment, the Yukon Environmental and Socioeconomic Assessment Board (YESAB), and its subsequent Act (YESAA) have also helped create a more streamlined process in the territory.

Although the government retains the authority to grant permits and licenses, YESAB is a more independent body, which during the assessment process seeks input from all relevant parties: government, First Nations, and the public.

Since 2005 YESAB has carried out 1,600 assessments. "We have developed our own regulatory process that is not part of the Canadian environmental assessment process. This is managed in Yukon for Yukon, which is a major improvement from the old system that was managed in Ottawa.

This shift has played a huge role in allowing the mining industry to open up [in Yukon]," said Mark Fekete, president and CEO at Stakeholder Gold Corp.

"Important to the environment is the 2006 Yukon Mine Reclamation and Closure Policy; subsequent to that is the financial strategy delineating the financial and technical guidelines required for mine reclamation and closure. The Yukon government continues to work with the mining industry, providing companies with facilitators to assist them through the assessment and regulatory processes," said Hon. Darrell Pasloski, Premier of the Yukon government.

The ongoing discussion of land claims has left uncertainty in neighboring British Columbia, but has been praised for its clarity in Yukon where 11 of 13 land claims settlements have been completed. "There is a major effort underway to reach an agreement [on outstanding land claims] but many are still in court. Until a land claim is settled, the environment is more difficult to work and deal in. Most of the First Nations are willing and eager to do business, but without the legal framework in place, both sides are unsure how to proceed," said Greg Fekete, partner, Austrig, Fendrick and Fairman Mining Lawyers LLP. "Settling land claims eases and speeds up the socio-economic development process and overall efficiency. The settlements allow them to establish programs, legal frameworks and infrastructures enabling growth and business developments."

Land use planning is another key consideration in Yukon. "Trying to fill the gap of the incomplete Land Use Planning process is a challenge for all proponents of the industry... This process should be completed as soon as possible to assist the understanding of potential use, and acceptable thresholds in specific areas of Yukon; the Land Use Planning process

would be a very useful tool for YESAB," said Stephen Mills, chairman, YESAB.

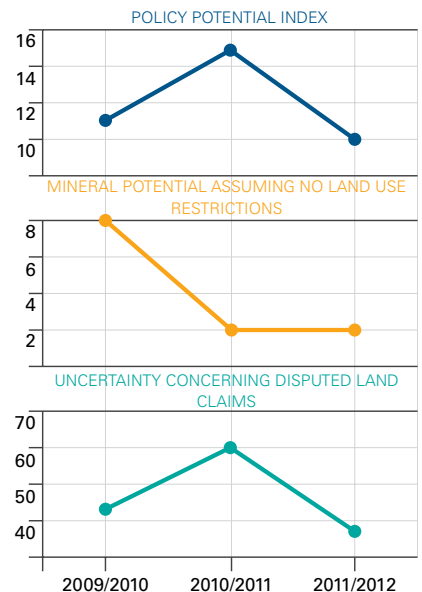
While the system may be a great improvement for those entering the mining sphere in Yukon, those who are more established face certain hurdles. "The current assessment legislation and guidelines in Yukon are not particularly well suited to the expansion of existing mines; they are effectively treated as brand-new projects creating a great deal of seemingly unnecessary additional work and permitting delays in order to clarify the exact scope of an expansion project versus pre-existing and pre-authorized facilities," said Scott Keeseey, environmental manager at Access Consulting Group.

The Yukon staking system has also been a point of contention for some in the industry, relying as it does on a more traditional physical marking of the area in question, rather than the "paperless staking" adopted in some other jurisdictions. "The system is a little antiquated. Arguably, it would be a positive step if we adopted British Columbia's online staking system," said G.C. (Carl) Friesen, vice president, Underhill Geomatics Ltd., Underhill and Underhill.

Overall, Yukon has proved it is taking the initiative to make its regulatory regime welcoming to the mining industry. •

## Yukon's Fraser Institute Ranking

Source: Fraser Institute



# Interview with Stephen Mills

CHAIR OF THE BOARD, YUKON ENVIRONMENTAL AND SOCIO-ECONOMIC ASSESSMENT BOARD (YESAB)

## How has YESAB's role assisted in the evolution of Yukon's mining industry?

Yukon has advanced more than other Canadian jurisdictions as 11 of the 14 First Nations have finalized Land Claim Agreements and Self-Government Agreements, unprecedented in Canada, creating a climate of cooperation. Another contributory factor to Yukon's advancement was in 2003 the devolution of authority from the federal government to the territorial government. YESAB is one piece of this positive framework of Yukon's regulatory procedure. I am a member of the Vuntut Gwitchin First Nation based in Old Crow, Yukon. My involvement with Yukon Environmental and Socio-economic Assessment Act (YESAA) began in 1996; I was Chief Negotiator for the Council of Yukon First Nations in the development of YESAA, and by 2010 was appointed to Chair YESAB. Prior to YESAA there was a patchwork of different assessment and regulatory regimes. When YESAA came into effect it replaced this patchwork of regimes with one assessment process that reviews an entire project no matter on whose land it occurs. YESAB was formed in 2004 upon which rules were generated for how the environmental and socio-economic assessments would be conducted. After 18 months of studying the YESAA legislation, draft rules were developed and agreed by YESAB and taken out to industry, environmental groups, municipal organizations, and First Nations, and discussed via working groups before these rules were applied by YESAB.

## What are the key concerns and initiatives that YESAB is currently focused on?

Since 2005 YESAB has carried out over 1,600 assessments. There are three different types of assessment: the designated office level covering 99% of assessments; the executive committee level; and a panel; to date a panel assess-

ment has not been utilized. Designated office level assessments are under tighter timelines and on average, are completed in around 35-40 days depending on the quality and level of detail within the project proposal; it is therefore essential that the information supplied by the proponent is complete and correct. To assist we have developed applicant and assessor guidelines to ensure there are no surprises in the assessment process for the proponents. In advance of project applications we invite and want to meet with proponents. Good dialogue and guidance, results in good project proposals.

## What has YESAB found to be the key concerns relating to the mining industry in Yukon?

Our key aspect when carrying out assessments is that we provide opportunities for all interested parties to put forward information that they would like to share to assist the assessment process. Generally, there are favorable comments from all parties involved in the process; however, a challenge for all proponents is that Yukon is a large area and at times lacks adequate baseline data. A further challenge for mining companies is that three of the fourteen First Nations still have to negotiate Land Claim and Self-Government Agreements; the expectations of those three First Nations is not defined within any legislation. Keeping pace with the number of applications is a challenge, putting a strain on our working time line.

## How have the number of assessments grown over the last two to three years, and what is the average time for these assessments?

Since 2006 we have seen a consistent 250 to 300 projects per year, approximately 100 being mining-related and a combination of placer and quartz projects; In 2011 we peaked at over 300 projects with the increase related to renewal of permits within the National Parks and

not mining-related. Currently, there is less project activity in 2012 than 2011. We have 21 different sectors, the biggest being in placer, secondly land developments, and thirdly quartz exploration. Quartz exploration projects are more complicated than when we starting assessments in 2005 with size of projects growing from what was 10 to 20 claims to 750 claims in size or larger, making assessment more complicated when assessing potential affects of a project, for example, the White Gold Area and the affect on the local wildlife. With the cooperation of Yukon government, First Nations, and the mining industry we are conducting baseline data studies in other exploration hotspot areas to assist future assessments and update guideline procedures. When our project workload is high, the assessment period tends to extend by approximately five days.

## Is there anything else you would like to add in relation to the mining industry?

Trying to fill the gap of the incomplete Land Use Planning process is a challenge for all proponents of the industry; there is only one Regional Land Use Plan in place in Yukon, which is in a non-sought-after area for mining. This process should be completed as soon as possible to assist the understanding of potential use, and acceptable thresholds in specific areas of Yukon; the Land Use Planning process would be a very useful tool for YESAB. The conclusion of the negotiations for the three outstanding First Nation agreements is key to providing more certainty to all involved in Yukon. The lack of infrastructure including power generation in Yukon is a problem and affects the economic benefits associated with mining. A further consideration is the limited human resources in Yukon and the high level of competition for that resource; it is important that the work of Yukon Mine Training Association continues. •

# Interview with Greg Fekete

PARTNER, AUSTRING, FENDRICK & FAIRMAN YUKON LAWYERS LLP



## Can you give us a brief overview of Austring, Fendrick and Fairman Lawyers?

Though formally established in 1973, the firm was founded in the 1960s; I have been a partner here for over a decade. Mining is really the lifeblood of the Yukon economy and our firm has been continuously involved in mining from its inception with involvement in some form or another in most every major mining project, both up and down, here in Yukon. We work extensively with both placer mining and hard rock mining projects, which makes the mining industry a substantial part of our revenue.

## Have you worked with any clients in the Northwest Territories or Nunavut?

Mainly due to our geographic location, we do not tend to work with companies in Nunavut. We do have some clients in the NWT and do quite a bit of work in northern British Columbia as well. The Stewart Cassiar Highway is situated in the northwestern part of BC, which links us to the north west part of BC, which is typically a very vibrant mineral exploration centre.

## Who are some of the key clients and projects you have been or are currently involved in?

I started my legal career here in the Yukon dealing with the fall out of companies like Anvil Range Mining Corporation and United Keno Hill Mines, which no longer exist. Those were not really great times for Yukon mining. As Yukon mining really began to grow again, we've taken on more active mining clients. My personal focus is not so much development stage companies as it is exploration companies. Our most significant mining client is Capstone Mining Corp. We have been legal counsel to their Yukon subsidiary Minto Exploration since the mid 1990s, even before Capstone was involved. We have watched them develop over the years from a small company to a significant force in the industry.

## What is the YESAB system and what role does it play in the mining industry in Yukon?

In Yukon, most of the territory is covered by land claim settlements. Not all the land claims have been settled, but out of 14 First Nation claims, 11 have been completed. Once they settle, they are self-governing, which is often a difficult concept for those outside the territory to grasp. Most of Canada still deals with bands setup under the Indian Act, not with settled first nations. We understand the specifics of these land claims and their settlements, and can help mining companies navigate these laws. There are many opportunities for partnering with and potential even mining on First Nations' lands, depending on their structure and organization. The YESAB Process came about through the settlement of land claims.

The YESAB system and settled land claims gives us a competitive advantage over other Canadian jurisdictions. We have developed our own regulatory process that is not part of the Canadian environmental assessment process. This is managed in Yukon for Yukon, which is a major improvement from the old system that was managed in Ottawa. This shift has played a huge role in allowing the mining industry to open up here over the last 7 or 8 years. As with any other regulatory system, there are structures and parameters that one must follow, but these are not too problematic if done correctly. As land claims have settled and with YESAB in place, Yukon has much greater certainty for mining than a jurisdiction like B.C.

## Can you comment on the current relationship we see between Yukon First Nations and the mining industry?

I think the overall relationship is good with the First Nations that have settled. There remain issues for the First Nations who have not yet settled their land claims. Two of them are located in prime

mining areas in southern Yukon and each has its own difficulties, with one running several lawsuits over mining matters, the regulatory process or land use. Until land claims are settled in these remaining areas, the environment is more difficult to work and deal in. While the unsettled First Nations are willing and eager to do business, without the legal framework in place, both sides are unsure how to proceed.

Overall, settlements have been positive. Settling land claims eases and speeds up the socioeconomic permitting process and overall efficiency. Settlements have allowed First Nations to establish programs, legal frameworks and institutions enabling growth and business development. First Nations with settled claims are now operating at a level where they can and do develop their own mining policy, and many have significant business interests.

## What is the vision of the firm within the Yukon mining industry and the northern mining industry more broadly?

Our vision is to continue what were doing in all facets of the industry. This includes continued development of the litigation side, the business development side and the exploration side of our business practices. The shift the industry has made in the last 10 years, from virtually no mining to several open and operating mines, has changed the environment and opened up a lot of potential for future mines. We have always focused on the service side to ensure all around support to all facets of the industry, and we plan to stay involved in the same capacity as we continue to grow. •

# Shawn Ryan

## Yukon prospecting legend

To those outside of Yukon, Shawn Ryan is unlikely to be a familiar name. To those who currently have their sights set on Yukon, however, this humble prospecting extraordinaire may very well be responsible for shaping the current mining boom the territory is seeing.

"Yukon missed out on the gold boom of the early 1980s, but was placed back on the map through the efforts of Shawn Ryan, prospector, and ATAC Resource's gold discovery, with Yukon's exploration expenditure now topping \$300 million per year. Yukon will not go back to the

sleepy backwater that it once was," said Mark Fekete, president and CEO at Stakeholder Gold Corp.

Shawn Ryan, who was originally drawn to Yukon for commercial wild mushroom picking, has refined exploration techniques that have to a large extent driven this boom. Soil sampling, a process that was previously regarded by many to be of limited effectiveness in identifying resource potential, has been the surprising tool to his success. "In 2001 we introduced our own deeper soil sampling technique using the same assay lab with the same assay technique, and utilizing the 36 geochemical elements from the IPMS techniques that we were using with Acme Labs. The deeper soil sampling technique we adopted enabled us to better understand the terrain. In our first project, instead of carrying the normal 200 to 300 soil samples, we took over 2,000 soil samples giving a pattern as to the geological structure of the land; in 2002 we increased soil sampling to 5,000; in 2003 we took 8,000 soil samples;

all this sampling enabled us to outline mineralized systems and identify a target-focus area," explained Ryan.

"The tool of soil sampling was not widely recognized to be as effective as it actually is for generating early-stage prospects; the main key is systematic data collection," said Isaac Fage, president, Ground Truth Exploration Inc. "We do not take credit for any discoveries he has made, but our data support work does provide important information on the road to making discoveries, most notably being the White Gold/Golden Saddle deposit, and Coffee Gold in the Supremo-Latte zones."

"Shawn Ryan brought a lot of energy to Yukon; however many investors got into a situation where they lost a lot of money because they did not clearly understand what they were investing in, just that they were Shawn Ryan discoveries, or how Yukon exploration season works and this made Yukon less attractive," said James Corrigan, president, Stina Resources Ltd.

The interest gained by Ryan's work has also brought significant business to local Yukon support companies. "The White Gold project, which involved Shawn Ryan as prospector, started with [Great River Air] flying four soil samplers in a Cessna to and from the field site; the next year there were 20 men, requiring a bigger aircraft, and it has developed from there. Kinross now owns the property and we are supporting the 300 personnel purpose-built camp accommodation," said Eric Rieder, head pilot at Great River Air.

Any success attracts its fair share of critics and disbelievers, yet Ryan is quick to point to those companies that, either through their own discoveries or by developing his finds, are proving the potential of Yukon: "currently, the leading lights in the exploration market are: ATAC Resources Limited; Ethos Gold Corporation; Pacific Ridge Exploration Limited; plus a recent addition Comstock Metals Limited. All are re-stimulating interest in the exploration market... The continuous new discovery of orebodies in Yukon ...is a silencing response to any skeptics [of Yukon's continued potential]," said Ryan. •

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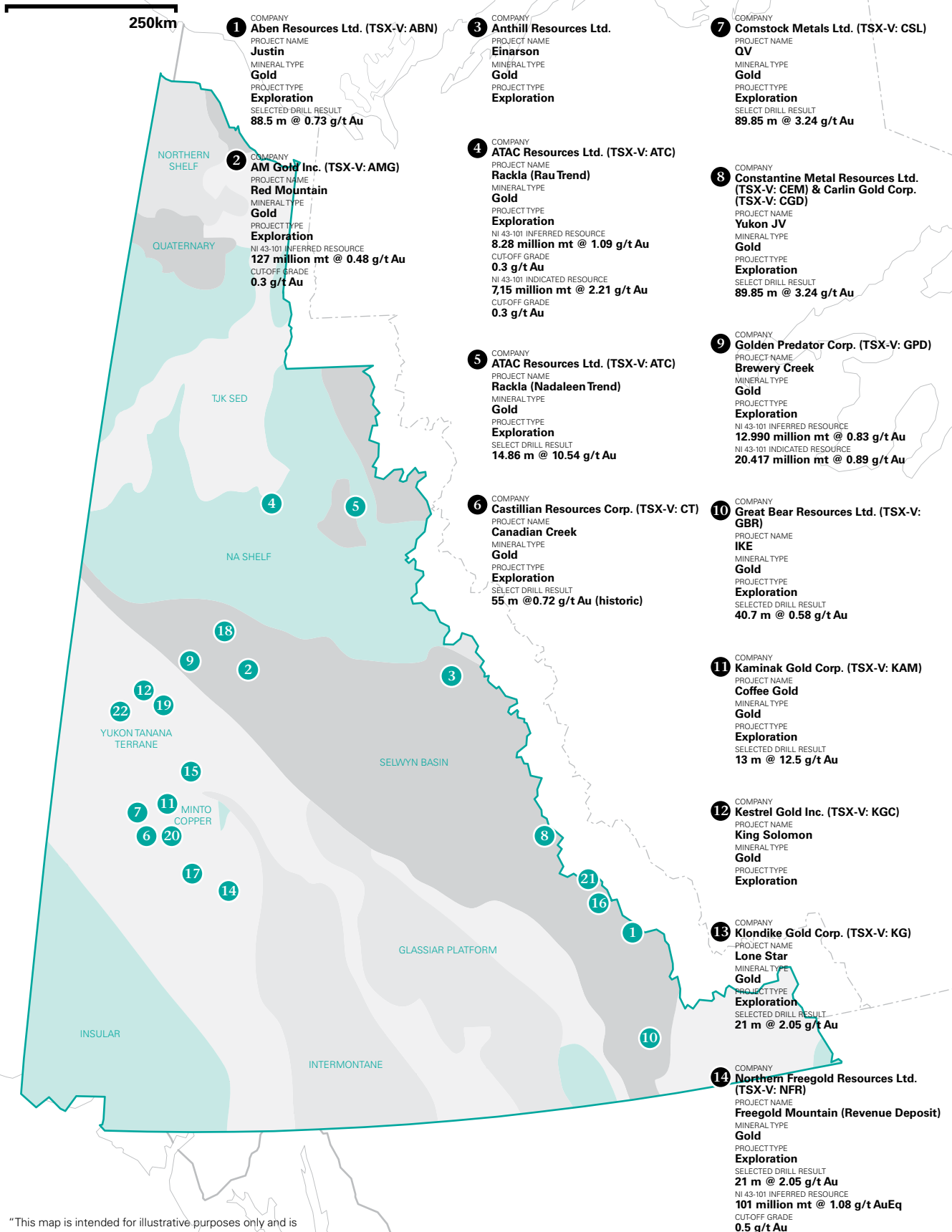
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# The Midas Touch: Mineral- by-Mineral Guide to Yukon

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“There are many opportunities in Yukon; it is a prolific area for new discoveries and a district that has experienced very little hard-rock mining production. For the White Gold district alone, Comstock has a target of 100 million oz gold camp. Yukon government is supportive of mining; Comstock has no issues with the bureaucracy of the territory, or with First Nations as all land claims have been settled. The only real issue from the view-point of an exploration company is the short period of available work-time due to the harsh climatic conditions of Yukon, albeit once in drilling and in production, year-round work can be carried out.”

- Rasool Mohammad, President and CEO,  
Comstock Metals Ltd.



"This map is intended for illustrative purposes only and is not intended for use as an investment tool"



- 15** COMPANY  
**Pacific Ridge Exploration Ltd. (TSX-V: PEX)**  
PROJECT NAME  
**Mariposa**  
MINERAL TYPE  
**Gold**  
PROJECT TYPE  
**Exploration**  
SELECT DRILL RESULT  
**38.9 m @ 2.44 g/t Au**
- 16** COMPANY  
**Precipitate Gold (TSX-V: PRG)**  
PROJECT NAME  
**Reef**  
MINERAL TYPE  
**Gold**  
PROJECT TYPE  
**Exploration**
- 17** COMPANY  
**Rockhaven Resources Ltd. (TSX-V: RK)**  
PROJECT NAME  
**Klaza**  
MINERAL TYPE  
**Gold**  
PROJECT TYPE  
**Exploration**  
SELECT DRILL RESULT  
**15.3 m @ 12.40 g/t AuEq**
- 18** COMPANY  
**Ryan Gold Corp. (TSX-V: RYG)**  
PROJECT NAME  
**Ida Oro**  
MINERAL TYPE  
**Gold**  
PROJECT TYPE  
**Exploration**  
SELECT DRILL RESULT  
**18.78 m @ 2.26 g/t Au**
- 19** COMPANY  
**Ryan Gold Corp. (TSX-V: RYG)**  
PROJECT NAME  
**Flume**  
MINERAL TYPE  
**Gold**  
PROJECT TYPE  
**Exploration**  
SELECT DRILL RESULT  
**2 m @ 5.76 g/t Au**
- 20** COMPANY  
**Stakeholder Gold Corp. (TSX-V: SRC)**  
PROJECT NAME  
**Dawson Range**  
MINERAL TYPE  
**Gold**  
PROJECT TYPE  
**Exploration**  
SELECT DRILL RESULT  
**3 m @ 0.95 g/t Au**
- 21** COMPANY  
**Stakeholder Gold Corp. (TSX-V: SRC)**  
PROJECT NAME  
**Culvert**  
MINERAL TYPE  
**Gold**  
PROJECT TYPE  
**Exploration**
- 22** COMPANY  
**Stina Resources Ltd. (TSX-V: SQA)**  
PROJECT NAME  
**Dime**  
MINERAL TYPE  
**Gold**  
PROJECT TYPE  
**Exploration**  
SELECT DRILL RESULT  
**66 m @ 0.31 g/t Au**

# Gold

In an unsteady, global financial market, the high price of gold, the lifeblood of Yukon in many ways, has remained a source of security for many. Continued demand, as well as the exciting Shawn Ryan discoveries, have ensured that Yukon continues to shine with gold. A number of key mining projects, such as Kaminak Gold Corp.'s Coffee Gold project and Kinross Gold Corp.'s White Gold project highlight the emerging White Gold district along the Tintina Gold belt. Golden Predator Corp.'s Brewery Creek project is also another Yukon project aggressively moving towards production. Victoria Gold Corp. is slated to be the next mine to come online in Yukon.

"The [Eagle Gold] project is a simple open-pit valley leach operation that will produce over 200,000 oz/y of gold and at current gold prices will have a cash flow of \$250 million per year. Capital cost is modest at under \$430 million; the project will employ 350 to 400 people and will prove a very significant economic development for Yukon... We expect permits to allow start of construction by early 2013. The construction time period is two years, which will have us in full production by 2015," said John McConnell, director, president and CEO, Victoria Gold.

Comstock Metals Ltd.'s QV property is another Shawn Ryan find that has recently caused renewed excitement in the territory. "The QV property is an extension of the Golden Saddle deposit, confirmed by a magnetic high geophysical signature coming across the river onto the QV grid. We carried out subsequent work on the QV grid... and the theory that the mag anomaly extended onto the QV property was confirmed by the trench results [of Shawn Ryan], not drill results, which are classified as the number-one in the district compared to the trenches of Golden Saddle and Kaminak," said Rasool Mohammad, president and CEO.

Comstock has just completed its financing for the QV property. "Drilling could commence in 2012, but if not, will definitely commence in 2013 with a minimum target of 5,000 m drilling," Mohammad said.

MingAn Fu, president of Anthill Resources Ltd., is an example of the increasing Chinese interest in Yukon. He is a Canadian immigrant who has worked in the mining industry in China for over 15 years focusing on precious metals. Anthill Resources is currently exploring for gold and copper; they have a drill program in place for 2,000 m in 2012. "After a year of surface work we did in 2011, we have identified six gold targets, three lead-zinc targets and one copper target. Within this last year we have identified very favorable geology settings, structure, and Alcott rock samples ranging from 2 g/mt to above 10 g/mt," said Fu.

Currently seeking an investment partner, Fu considers Yukon "virgin land." "The overall infrastructure in this part of Yukon is pretty poor, but we are hoping our neighboring companies will make good discoveries as well, and in the future we could maybe combine forces and change the infrastructure," said Fu. Western Copper and Gold Corp.'s Casino project is another significant project currently making headway in Yukon. Aimed to complete a prefeasibility study in 2012, the company will submit its permit application in the first half of 2013. "The main economic impact of Casino will be an increase of 20% in Yukon's GDP, which is remarkable.

Perhaps more significant is that the project will require a construction force in excess of 2,000 and a full-time labor force of 400 to 500 during operation in addition to service jobs created to cater to the project. Over the 23-year mine life of Casino, the projected input to the Canadian economy will be \$9.8 billion," said West-Sells. Others, like Kestrel Gold Inc., are hunting for the source of gold in the area. "These properties are situated along ridges that have long been rumored to be the source of the Klondike placer gold. If you look at the creeks surrounding the King Solomon Dome and in particular Dominion

Creek, they are extremely rich placer gold streams. The type of gold that has come from the creeks on either side of the Dome it is very similar in its chemistry, suggesting a common source. The amount of placer gold taken from the Klondike region has been estimated at around 20 million oz and there has been a relatively miniscule amount of gold that has been hard-rock mined in the area," said William A. Taylor, vice president of exploration.

Other aspects of Yukon's geology also contribute towards making the territory an unusual and exciting gold destination. A wide diversity of geological attributes are present, and methods of exploration have adapted in kind.

"There are many different sources of Klondike gold in Yukon throughout the Tintina gold belt. The area is unique in Canada and the glacial limits stop just east of where our claims are. As the area is unglaciated, you can collect a soil sample from the surface and it represents a bedrock source," said Gary Freeman, president and CEO of Ethos Gold Corp., a junior company that, until

recently, had a large focus on its Betty Project, located along the strike of the Kaminak property and just over the claim boundary from Western Copper and Gold's Casino property. Klondike Gold Corp. has the Lone Star project, which showcases the uniqueness of Yukon properties. "There is something very special about the property; it has produced more gold per square yard than any other place in the world," said Erich Rauguth, president and CEO, Klondike Gold. They will be undertaking their drill program in 2012. Also a local resident in Yukon, Rauguth understands the need for balanced development. "You have to get people on board that are interested and knowledgeable about development, which is not the case in many mining companies. It is our social responsibility to hire the locals, and be aware of their concerns, wherever it is we operate."

Another unique project, ATAC Resources Ltd. has the Rackla Gold Project, Canada's only Carlin-style gold project, similar to those seen in Nevada. "Carlin-type deposits can occur anywhere... the deposits can be any rock with exceptional

amounts of calcium carbonate, typically in limestone, though this is not always constant," said Rob Carne, president of ATAC, who now has more than 40 years of exploration geology on his resume.

Having drilled 30,000 meters in 2011, their aim is now to develop a maiden resource and they are currently focusing on resource delineation and expansion of three areas of interest they have within the project.

Constantine Metal Resources Ltd. is another highly active gold focused junior in the territory. "[Having] staked 5,000 claims over an area of 1,000 sq km, and followed up silt anomalies by carrying out soil sampling [we are now trying] to determine if an ore body was present in the soils... We now have three project areas with well defined soil anomaly grids with very high gold-in-soils, brand new and ready to be drilled which we plan to commence summer 2013," said Darwin Green, vice president of exploration.

Aben Resources, which also have operations in the Northwest Territories, are moving its Justin Gold property ahead.



Courtesy of Victoria Gold Corp

"We had to apply for a number of permits this year going into the drilling season and we got our last one, a five year, class 3-exploration permit, within a few months of applying, proving that the system is timely," said Jordan Trimble, corporate development and communications.

While these exploration activities can appear to move quickly, they can also still be done on a budget in the North. "At our primary project, Red Mountain, we drilled 12,000 m in two short seasons and went from a grassroots project, to an inferred resource estimate of 127 million mt grading 0.48 g/mt, approximately 1.95 million oz of contained gold. This inferred resource was achieved with a very limited budget of just over \$5 million. The long mineralized gold intercepts is what has allowed us to add significantly to our resource with a minimal amount of drilling and in turn will give AM Gold's Red Mountain a competitive advantage in a crowded junior exploration marketplace as the project advances," said John Fiorino, CEO, AM Gold Inc. •

# Placer Mining

## An older tradition

Images conjured of the Klondike gold rush often include panning for gold, rough-and tough explorers and sour toes. The modern face of placer mining is much more advanced. These small placer mining operations tend to be predominantly owner operated.

According to the Klondike Placer Miners' Association (KPMA) there are about 100 KPMA private self-funded members within a small industry (if compared with the junior exploration sector).

"For the number of operations, placer miners would overwhelmingly be the largest group, but the total placer mining production for 2011 was only 45,000 oz gold... The resident Yukon geologists and exploration people who have serviced Yukon for many years have worked side-by-side with placer miners. Hard rock mining in Yukon is in its infancy

compared to placer mining," said Stuart Schmidt, president of KPMA and owner of Schmidt Mining Corp. "Arguably, within the territory the general public is friendly towards placer mining; however, from a regulatory viewpoint it is becoming more difficult to operate. Placer miners operate in rivers and streams that are under regulatory control so it is difficult to move the location of mining without falling foul of the regulations. KPMA is concerned about the future of placer mining, but to be a placer miner you have to be an optimist." •



YUKON'S NEXT NEW GOLD MINE



The Eagle Gold Project is on track to become the largest gold mine in Yukon's history, producing +200,000 ounces Au per annum.

With a positive feasibility report, year-round road access, hydroelectric power, an agreement with the First Nation of the Na-Cho Nyak Dun and the permitting process well underway; Eagle will be in full production in 2015.

Welcome to the Gold Rush!

# Gold Rush!

TSX-V: VIT

EAGLE GOLD PROJECT

To learn more about Victoria Gold Corp. and our projects, visit us at: [vitgoldcorp.com](http://vitgoldcorp.com)

# Interview with John McConnell

DIRECTOR, PRESIDENT AND CEO, VICTORIA GOLD CORP.

## Please give us a brief overview of your background and the history of Victoria Gold Corp. in Canada?

A mining engineer by profession, I have spent 90% of my career in the North, the first half of which was operating mines mostly in Nunavut, including twelve years running the Nanisivik zinc-lead mine on Baffin Island. I have since moved into exploration and development. I became CEO of Victoria Gold Corp. in February 2011; prior to this I was executive vice president for two years. Victoria Gold saw the collapse of 2008 as an opportunity and with the backing of Kinross Gold Corporation we purchased two companies: Gateway Gold who gave us assets in Nevada, and StrataGold assets in Yukon and Guyana though we no longer hold the Guyana assets. Victoria Gold's flagship project is the Eagle Gold deposit in Yukon; we are through 90% of the permitting process, having recently completed a feasibility study, and are targeting mine construction for early 2013.

## When will we see the permitting of the Eagle Gold Project completed?

We are not in control of the permitting process but we expect permits to allow start of construction in early 2013. The construction time period is two years, which will have us in full production by 2015.

## Can you tell us about the key results of your 2011 economic assessment; and what business model do you have in place to achieve your target of 2015 production?

The feasibility study was published in February 2012 and key highlights show that the Eagle Gold project is economically robust. The project is a simple open-pit valley leach operation that will produce over 200,000 oz of gold per year and at current gold prices will have a cash flow of \$250 million per year. Capital cost is modest at under \$430 mil-

lion; the project will employ 350 to 400 people and will prove a very significant economic development for Yukon. Our plan is to solely take the project to production; however, we are a public company which carries the risk of a buyout, which is concerning given the depressed markets and current share price that significantly undervalues the Eagle project.

## Can you give more details on the active exploration you are undertaking on other mineral targets in Yukon?

Victoria Gold's main focus is developing the Eagle Gold Project, but we do have a very large land package in Yukon all in the Mayo / Dublin Gulch area. Our exploration budget for 2012 is \$8 million. Since 2009, exploration has increased in Yukon but some of the shine has faded from Yukon with a lack of discoveries. For most companies, Yukon has a very limited working season of three or four months; it can take three years to carry out what can be done in a single year in southern Ontario. Victoria had the foresight to install a permanent camp at Eagle and we are now one of the only juniors that explores year round in the Yukon. This is a very big advantage as it allows us to advance our properties for 12 months of the year.

## Is it time for Yukon to be the next mining frontier and what are the key challenges and opportunities of operating in Yukon?

Yukon is still very much unexplored and still presents good opportunities. The Yukon government has taken some very positive steps such as, settled a majority of land claims with First Nations and has implemented one-process permitting which is unique in North America. We have year-round access to the Eagle Gold Project and are within 50 km of Yukon Energy Corporation's power grid with an agreement in place to provide power.



## What are your predictions for the price of gold and how will it affect your economic structure and focus?

Victoria Gold has good investor interest; we are known throughout the markets, and our investors are loyal. It is difficult to predict where the price of gold will go, but we are confident that gold will continue to rise. At current gold prices we will have a mine that is economical, where our operating cost to produce one ounce of gold will be less than \$600.

## Can you give details of Victoria Gold's corporate social responsibility initiatives and what steps are you taking to ensure a light environmental footprint in Yukon?

As a company, Victoria Gold know how to do it right. Victoria Gold is in a unique position having already signed an impact benefit agreement with the First Nation of Nacho Nyak Dun who is now our partner and keen for the project to go ahead; it is their traditional territory and we felt that the agreement signing was our responsibility. In Canada today a permit cannot be secured to build a mine without the submission of an environmental assessment detailing how any impact on the environment will be mitigated; Victoria Gold take this assessment very seriously and go even further than the permitting process requires. Victoria Gold's environmental assessment submissions are used as a model template by YESAB (Yukon Environmental and Socio-economic Assessment Board) and lay testament to the responsibility we take regarding environmental concerns. •

# Interview with Ming An Fu

PRESIDENT ANTHILL RESOURCES LTD.

## Could you tell us about some of the key milestones of Anthill Resources Ltd?

Anthill Resources Ltd. was established in 2009. Mr. Fu is a Canadian immigrant who worked in the mining industry in China for over fifteen years focusing on iron ore and precious metals. The first major milestone for Anthill resources was a major investment in Yellowhead Mining Inc (TSX:YMI). in 2010. In late 2010 we learnt about a major discovery from ATAC Resources in the Osiris zone. After careful study, we staked and acquired about 12,000 claims in the adjacent land right away. Since then, Yukon project has been our primary focus.

## Will gold be the key focus of the company, or will you be looking into other minerals and commodities?

We will be focusing on our Yukon project as it is a major one, and has a lot of potential.

## Would you be able to give us an update on these 12,000 claims? What are some of the key facts and figures of the project?

On this 2,400 square-kilometer Einarson Property, Anthill Resources successfully concluded an aggressive exploration project, progressing in a single season from reconnaissance-style greenfield exploration to identification and drilling of two significant gold targets. Multiple trends prospective for Carlin-style gold mineralization identified through drilling, surface mapping and silt geochemical sampling. Two hard-rock gold discoveries in favorable geological settings have been identified. 1,875-metre diamond drilling program has been completed. Venus Zone Drill hole D2-12-05 intersected 9.67g/t gold over 38.7 meter. Grab samples of silicified carbonates grade as high as 87.2 grams/tonne (2.54 oz/ton) gold at the Venus Zone). Strongly developed orpiment and realgar mineralization occur within this particular system, suggest-

ing geological similarity to the Nadaleen Trend discoveries. Property-wide soil, regional and detailed stream sampling, geological mapping and detailed prospecting surveys have been completed. Several new targets identified during regional phase to be explored further in 2013.

## What type of vision do you have for this property?

We believe that this property present strong potential of finding the next Carlin style gold deposit. We hope in the future to find a strong partner to join us in this project, to jointly develop this project.

## Have you found that investors are more likely to invest in projects that are near production?

In my personal opinion, any investor would look at the growth opportunity in an investment. I think Yukon has great potential because it is almost virgin land, but everyone has their own opinion of when and how to invest.

## Has the issue of power come up? Has it been a consideration for the future?

The overall infrastructure in Yukon is pretty poor, but we are hoping that we and our neighboring companies will all make good discoveries, and in the future we could maybe combine forces and change the infrastructure situation.

## What are some of the key challenges of working in Yukon?

Mainly, it is the infrastructure, which includes the roads and power, as well as the small window of working time.

## What is the future vision of Anthill Resources?

For the next few years, we will be mainly focusing on the Yukon project, but once it gets to a certain stage, we will be looking at other projects in Canada for further investment.



## Do you have a final message for the readers of E&MJ?

In general I think Canada is a very politically stable country, which is why I have decided to move my primary focus to Canada, and to give everything I have into our Canadian projects. I am very happy to do what I am doing here, and I believe Canada is a very safe country to invest in. •

# Interview with Erich Rauguth

PRESIDENT AND CEO, KLONDIKE GOLD CORP.



**Could you give us some key facts and figures of the Lone Star project in Yukon?**

It has been very difficult to produce a geological map of the 150 sq km plot of land to be explored. Without a geological map exploration of a property becomes very difficult and very expensive. One of the reasons they could not get a geological map is because they are missing geological markers that they could use to identify the geology of the underlying quartz and gold bearing formations. In addition, there was never a structure mapping done of the property so when we came along in 2011 there was no complete structural map and no geological map in existence. In conjunction with the University of British Columbia and our geologist, Dr. Tim Liverton, they came up with a possibility of using chemical signatures to trace mineralogy to help us map the area. This guided us to drill two holes to get the information of the underlying rock formation so we can analyze them for their chemistry in order to map and guide us to the next exploration holes. The holes we are drilling now are not really to find gold but to get the tools to help us direct our drilling program this fall 2012.

**Will the Lonestar project continue to be the main focus of the company or are you currently seeking any other projects outside of this area?**

We have a three-point strategy. Firstly, as Klondike Gold Corp. we concentrate on gold. We want to develop and operate our own gold targets with the primary focus on Klondike. We are actively seeking new targets throughout the world where mining is accepted to also be joint ventures with other partners that are currently operating and financing them. Currently we are engaged and looking for projects in Portugal and are looking for projects in Spain and, thirdly, we will probably move to South America by the end of next year though always with the focus of finding an active joint-venture partner. That permits us to maintain our focus on Klondike and BC properties.

**Many have lamented at the current state of the junior market, what are your thoughts?**

Investors, especially the ones who are venture oriented, are always more keen on investing in producing mines or advanced stage projects. If you look at the current market, the producing companies have not been hit as hard as the juniors have been hit and we are talking about two different types of investors. There are a lot of investors that previously did not want to invest in junior companies, now we find that exploration partners have changed their minds. The reason is that they realized that Yukon is the only place now that you can find a previously undiscovered gold resource. One of the problems of the mining industry is that the price of gold is very high and there is a huge demand for it. Production is all placed by demand and there are no reserves. The other problem is the disparity between profits in the mining sector, cash on hand, and shareholder benefits. Shareholders are discouraged because they do not participate in the price and the upside of the gold market. So when we are looking at larger corporations they are less affected than the juniors.

**Do you have a final message for our readers?**

Yukon has a very independent population and they will survive whatever the direction the gold industry goes. There is a lot of room for improvement when it comes to social development. A partnership between the community, government and industry would be ideal. Using mining operations as a catalyst to provide training and create industries separate and independent from all mining operations in the region is a hope I have. You have to get people on board that are interested and knowledgeable about development, which is not the case in many mining companies; it is our social responsibility to hire the locals, and be aware of their concerns, wherever it is we operate. •

"Of approximately 200 resource companies in the Yukon, perhaps around 10% to 20% have road access and these are the companies who are likely to develop their properties. Without roads and electricity, projects can struggle, as bringing rigs and equipment in by helicopter is very expensive and building a road can be exorbitant. Fortunately, we have access to our property through a government-maintained road. The strategic location of the property will become an increasingly important factor. Northern Freegold Resources is based just south of Capstone's operating Minto copper mine which is connected to the electricity grid. It is about 30 km from us as the crow flies. There is another copper project to our east, Carmacks Copper, which is in its final permitting stages, The electricity utility, Yukon Electrical Company, has plans to extend a spur line from Carmacks to that property which would give us an even closer conduit to grid power."

**John Burges, President, Director and CEO, Northern Freegold Resources**

"The Carmacks Copper Project is unique; it is a copper-oxide project and, provided permitting is in place, production is anticipated within three years enabling Copper North to be a near-term producer. It will be an open-pit heap leach SXEW operation with a targeted annual production of 32 million lb; will have a mine-life of approximately six years; and our capital expenditure investment will be \$150 million subject to an updated feasibility study in July 2012. It is a ready-made project with good road access, infrastructure, and our power source will be Yukon power grid. Copper North will be taking the project into production"

**Sally Eyre, President & CEO, Copper North Mining Corp.**

"There are large precious and base metal deposits here, some already discovered and many in the early stages of discovery. The juniors are leading the discovery parade, there will be major company takeovers of successful juniors in the next few years. Energy issues will be resolved with government incentives. Do not ignore Yukon and the juniors who are committed to Yukon."

**John S. Brock, President, CEO and Director, Pacific Ridge Exploration Ltd.**

"ATAC's Rankla gold project is the only Carlin-style gold project in Canada, Carlin type deposits have a very unique gold mineralization which differentiate it from those explored and mined in Western Canada and adjacent Alaska, which are more related to granitic bodies and intrusive related gold deposits, such as Victoria Gold's Eagle near us... The government is working very hard to tackle the issue of power, which is the one key concern on the agenda right now. Power generation in Yukon is largely run by two hydro projects, which must be supplemented by diesel generation in the winter at times. This means that without new generation capacity put in place soon, there may not be enough power to move a project along."

**Rob Carne, President and Director, ATAC Resources Ltd.**



**KLONDIKE GOLD CORP.**  
CANADIAN GOLD AND BASE METAL EXPLORATION

# Finding the source OF THE KLONDIKE GOLD



Klondike Gold Corp. (TSX.V: KG) is a property rich company applying modern exploration techniques to locate the underground source, or sources, of one of the richest surface gold deposits ever known. The experienced exploration team is conducting conventional prospecting, geological and geophysical surveys and core drilling together with the results from highly acclaimed academic studies of the structural geology of the region to measure important resources. Through many years of persistent hard work and applied science, Klondike Gold Corp. is gathering the required geological evidence that will move the exciting project forward.

[www.klondikegoldcorp.com](http://www.klondikegoldcorp.com)

# Interview with William Taylor

V.P. EXPLORATION, KESTREL GOLD INC.

## Could you tell us about your experience with Kestrel Gold Inc.?

Kevin Nephin, the company CEO & President showed me the projects that he had acquired for Kestrel when I first came on board in early 2011, including three in Argentina and four properties in the Yukon. It was the properties' locations that caught my attention because of the great upside potential that they have, with the Yukon properties in particular having the most potential to become new discovery areas in the near term.

## Could you tell us about the key summer 2012 project that is in place?

The King Solomon Dome (KSD) property has a large gold soil geochemical anomaly with a corresponding large geophysical anomaly which is open in all directions. There are high-grade gold rock samples that have been obtained over a widespread area at KSD and beyond on all our Yukon properties. Our main priority in advance of diamond drilling is a deep geophysical IP survey at KSD for 2012.

## What makes Kestrel's Properties in Yukon unique?

These properties are situated along ridges that have long been rumored to be the source of the Klondike placer gold. If you look at the creeks surrounding the King Solomon Dome and in particular Dominion Creek, they are extremely rich, placer gold streams. The type of gold that has come from the creeks on either side of the Dome it is very similar in its chemistry, suggesting a common source. The amount of placer gold taken from the Klondike region has been estimated at around 20 million ounces and there has been a relatively miniscule amount of gold that has been hard-rock mined in the area. Over the years, sporadic exploration has occurred but the economy in the past has not always been condu-

cive to undertaking fully comprehensive exploration programs. For a number of years the Klondike region and indeed the Yukon languished as a whole in this respect. It is still however surprising that this property has never been diamond drilled considering its location and the fact that it has one of the largest gold soil geochemical anomalies in the Klondike.

We are thinking of the geology and mineralization on the properties in terms of an Orogenic gold model. We are looking at other examples around the world in terms of a model and we need to see if the system at KSD continues at depth, which could make for a large deposit. Our first geophysics program suggested that there is a gold exploration target to about 130m. Our more recent deeper geophysical survey extends the target to depths down to 350m (Post interview update). Based on chargeability anomalies, the exploration target is still open in all directions.

## Are you seeking other properties around the world or focusing strictly on Yukon?

In the Yukon there is still a lot of highly prospective ground that exists and our main exploration focus will indeed be in the Yukon. The Yukon is an attractive mining destination; it is relatively easy to work there, people are very helpful and the government encourages the growth of the mining industry. Increasingly important these days, it is a safe area politically. There is still so much of the Yukon that remains unexplored and many significant discoveries will undoubtedly be made in the coming years.

## Do you think international interest in the Yukon has begun to wane?

There was a lot of activity a couple of years ago after the new discoveries were made and subsequently expectations were very high, however, since

then, there has been much more caution. Junior mining companies in general across the board, not just in the Yukon, are having challenges financing projects due to uncertainties in the global equity markets. There have been some very good results released by a number of companies recently that the international financial market has somewhat overlooked and international interest I believe will pick up again when there is less panic and more reason.

## How do you view the current junior market more generally?

There is a dichotomy between the price of gold and the share prices of the juniors, which have not yet caught up with the gold prices. The companies that can hang in there and spend their money wisely maintaining and acquiring good unique properties with upside potential, will be successful. There is likely to be a lot of consolidation that will focus on the better quality mineral properties.

## Could you discuss further Kestrel's First Nations consultations and engagement?

We have started preliminary dialogue with First Nation representatives and are keen to continue with constructive communication to ensure that successful exploration programs can potentially lead to economic benefits to the region as a whole without compromise to the environment, culture and communities.

## Do you have a final message for the readers of E&MJ?

Those interested in gold and potential new gold discoveries should be keeping an eye on companies working in the Klondike. The long-rumored source of placer gold, which is still being mined nearly 120 years after the original Klondike Gold rush, may indeed be close to being discovered with the recent pulse of exploration activity in the region. •



# Searching for the Source of Placer Gold

Kestrel's Yukon properties are somewhat unique in that they are situated along ridges that have long been rumored to be the source of the Klondike placer gold starting with the gold rush of 1896. The creeks surrounding the King Solomon Dome (KSD) are extremely rich, placer gold streams. Placer mining is still thriving with most of the placer gold in the Yukon in 2012 coming from Dominion Creek and Indian River. The headwaters of Dominion Creek are situated on the KSD property itself and coarse gold nuggets have been found in this area. Significantly, the "type" of gold that has come from other creeks radiating from off the "Dome" is very similar in its chemistry, suggesting a common localized lode source.

An estimated 20 million ounces of placer gold has been obtained, with a relatively miniscule amount of hard-rock gold mined in the area. Over the years, sporadic exploration has occurred but the Klondike region and indeed the Yukon overall languished in terms of money spent on exploration. Although KSD had been "tied up" for a number of decades, it is still however, remarkable that this property has never been diamond drilled; especially considering its location and the fact that it has one of the largest gold soil geochemical anomalies in the Klondike and the best exposure of the Klondike vein system at "Sheba" (and now in 2012, a significantly large corresponding IP chargeability anomaly).

The new Kestrel IP anomaly is particularly encouraging in terms of the geological exploration model for a large gold rich source rock beneath the "Dome." Throughout the Dawson range (including the White Gold District), lode gold mineralization is closely associated with pyrite mineralization/alteration. Trench work has shown that altered Klondike schist with abundant hydrothermally altered pyrite cubes gives good gold values especially where proximal to quartz fracture fills (where visible gold can sometimes be seen). Pyrite cubes associated with gold rich host rocks hold electrical charges very well due to their size and abundant dispersion in prospective parts of the Klondike schist and IP chargeability is proving to be an excellent exploration tool.

There is also the presence of a low angle thrust feature, which is of likely importance in juxtaposing different host rock compositions. The western portion of the Klondike goldfields is believed to be generally more mafic in chemistry and thus more reactive to gold precipitation.

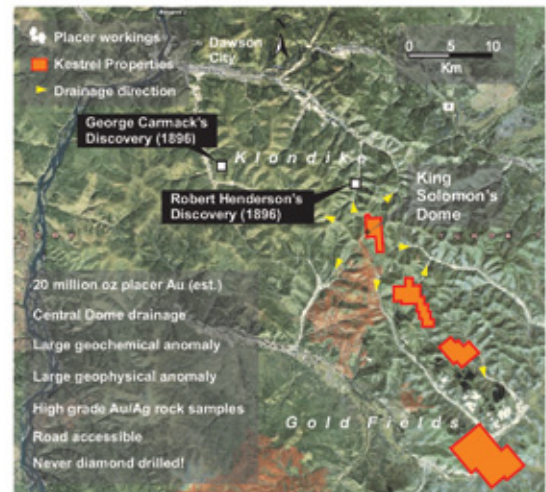
At KSD, gold mineralization (up to 17 g/t Au in rocks and 4000 ppb Au in soils) occurs over a strike length of 3.5 km (and 0.5 km wide in places) and several drill targets have been defined. Along the regional trend approximately 20 kilometres to the southeast, further drill targets exist on the Gold Run property in schists exhibiting visible gold.

Kestrel is highly encouraged with the recent results obtained some 116 years after the discovery that started one of the most

significant gold rushes in history and is currently arranging for funding to drill the several targets outlined on its Yukon properties with both diamond drilling and further trenching scheduled for early 2013. Kestrel's aim is to discover the most significant gold-silver deposit in the Yukon, and at KSD, the potential is there. •

**Kestrel Gold's** strategy for growth and shareholder value is to define, acquire and systematically explore quality projects in areas where there are sound geological models suggesting the potential for sizeable mineral exploration targets. Regional geological terranes are of particular interest where large gold deposits have already been found in the past and/or where there is good evidence that there is strong potential for a significant discovery to be realized.

**William Taylor**, Kestrel's V.P. of Exploration received a geology B.Sc. from the University of London UK, in 1983, concurrently winning awards for outstanding fieldwork. That year he moved to Canada and began a career in the mining industry, first working for Rio Algom and then Kerr Addison Mines. He has worked as a geoscientist for a number of companies across three continents. He also worked as a project geologist for the Ministry of Mines B.C. (MEM-PR) co-authoring "Lode Gold and Silver in South Central British Columbia". He recently obtained a M.Sc. in Engineering Geology which included strong environmental, GIS and remote sensing components.

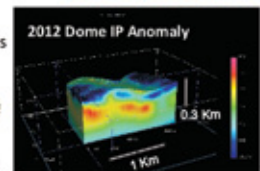


Discovery is... rumour to...

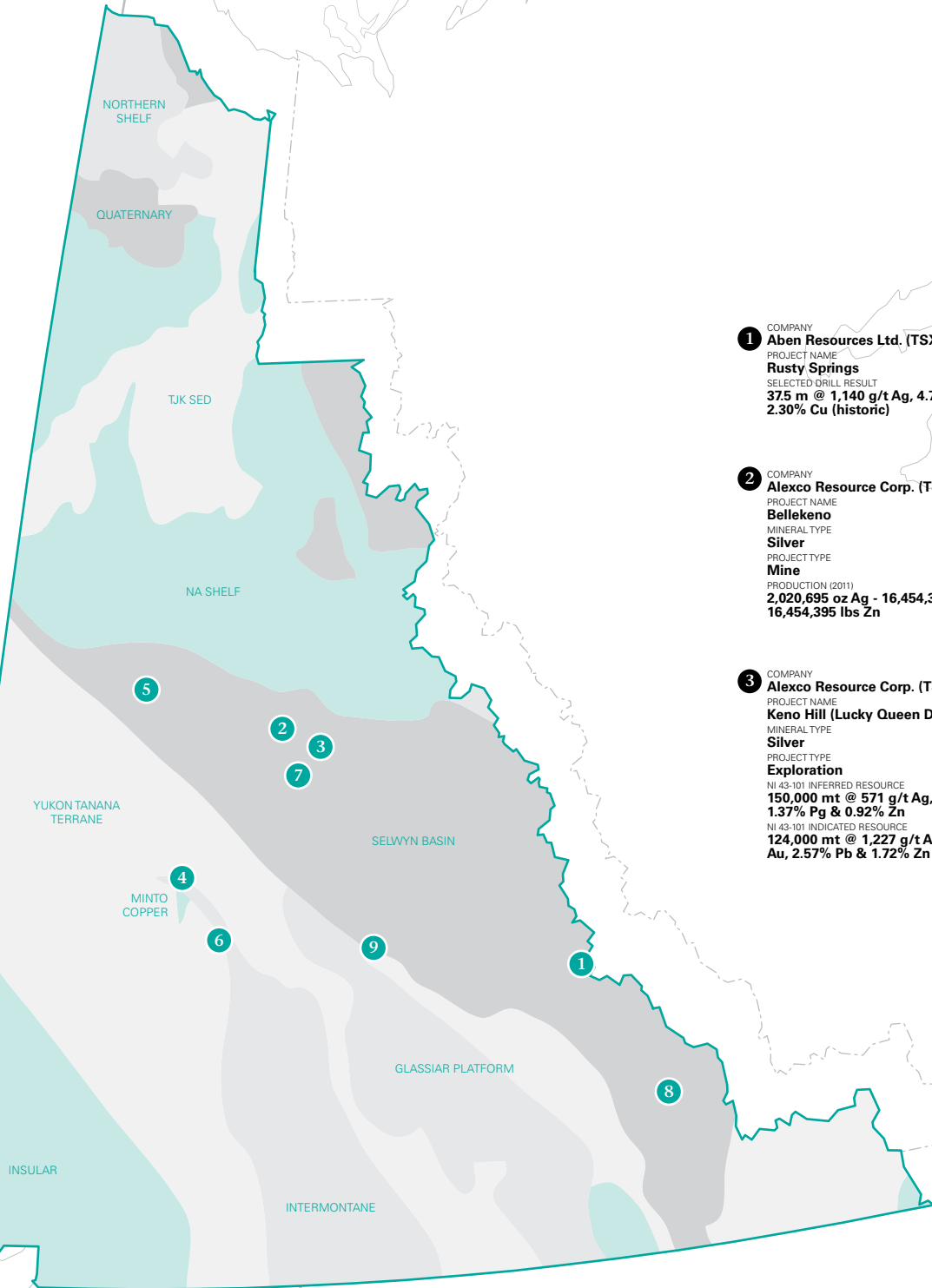
...realization

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Exploring Yukon's Klondike Gold Fields  
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Fax: 604-824-6052



250km



**1** COMPANY  
**Aben Resources Ltd. (TSX-V: ABN)**  
PROJECT NAME  
**Rusty Springs**  
SELECTED DRILL RESULT  
**37.5 m @ 1,140 g/t Ag, 4.72% Pb & 2.30% Cu (historic)**

**2** COMPANY  
**Alexco Resource Corp. (TSX: AXR)**  
PROJECT NAME  
**Bellekeno**  
MINERAL TYPE  
**Silver**  
PROJECT TYPE  
**Mine**  
PRODUCTION (2011)  
**2,020,695 oz Ag - 16,454,395 lbs Pb - 16,454,395 lbs Zn**

**3** COMPANY  
**Alexco Resource Corp. (TSX: AXR)**  
PROJECT NAME  
**Keno Hill (Lucky Queen Deposit)**  
MINERAL TYPE  
**Silver**  
PROJECT TYPE  
**Exploration**  
NI 43-101 INFERRED RESOURCE  
**150,000 mt @ 571 g/t Ag, 0.16 g/t Au, 1.37% Pb & 0.92% Zn**  
NI 43-101 INDICATED RESOURCE  
**124,000 mt @ 1,227 g/t Ag, 0.17 g/t Au, 2.57% Pb & 1.72% Zn**

"This map is intended for illustrative purposes only and is not intended for use as an investment tool"

**4** COMPANY  
**Capstone Mining Corp. (TSX: CS)**  
PROJECT NAME  
**Minto**  
MINERAL TYPE  
**Copper**  
PROJECT TYPE  
**Mine**  
PRODUCTION (2011)  
**37,124,000 lbs Cu - 196,098 oz Ag - 18,439 oz Ag**

**5** COMPANY  
**Commander Resources Ltd. (TSX-V: CMD)**  
PROJECT NAME  
**Olympic**  
MINERAL TYPE  
**Copper**  
PROJECT TYPE  
**Exploration**

**6** COMPANY  
**Copper North Mining Corp. (TSX-V: COL)**  
PROJECT NAME  
**Carmacks**  
MINERAL TYPE  
**Copper**  
PROJECT TYPE  
**Exploration**  
NI 43-101 INFERRED RESOURCE  
**90,000 mt @ 0.73% TCu, 0.128 g/t Au & 1.809 g/t Ag (oxide zones only)**  
NI 43-101 INDICATED RESOURCE  
**7.949 million mt @ 1.04% TCu, 0.391 g/t Au & 4.039 g/t Ag (oxide zones only) Au, 2.57% Pb & 1.72% Zn**  
CUTOFF GRADE  
**0.25% TCu**  
NI 43-101 MEASURED RESOURCE  
**4.031 million mt @ 1.10% TCu, 0.588 g/t Au & 5.666 g/t Ag (oxide zones only)**  
CUTOFF GRADE  
**0.25% TCu**

**7** COMPANY  
**Monster Mining Corp. (TSX-V: MAN)**  
PROJECT NAME  
**Keno-Lightning**  
MINERAL TYPE  
**Silver**  
PROJECT TYPE  
**Exploration**  
SELECTED DRILL RESULT  
**1.4 m @ 1,696 g/t Ag**

**8** COMPANY  
**Pacific Ridge Exploration Ltd. (TSX-V: PEX)**  
PROJECT NAME  
**Fyre Lake**  
MINERAL TYPE  
**Copper**  
PROJECT TYPE  
**Exploration**  
NI 43-101 INFERRED RESOURCE  
**5.361 million mt @ 1.48% Cu, 0.08% Co & 0.53 g/t Au**  
CUTOFF GRADE  
**1% CuEq**  
NI 43-101 INDICATED RESOURCE  
**3.571 million mt @ 1.57% Cu, 0.10% Co & 0.61 g/t Au**  
CUTOFF GRADE  
**1% CuEq**

**9** COMPANY  
**Silver Range Resources Ltd. (TSX-V: SNG)**  
PROJECT NAME  
**Silver Range**  
MINERAL TYPE  
**Silver**  
PROJECT TYPE  
**Exploration**  
NI 43-101 INFERRED RESOURCE  
**39.76 million mt @ 30.25 g/t Ag, 0.26% Pb, 0.77% Zn, 0.15% Cu, 265.7 ppm Sn & 5.77 ppm In**  
CUTOFF GRADE  
**16 g/t Ag**

# Copper

Though internationally known for its significant gold resources, copper is arguably the second most active commodity currently in Yukon and one that investors will be watching closely. Copper reached a four-month price high in September and continues to look promising.

Capstone's Minto mine is forecast to produce 38 million lb of copper in 2012. "In the early part of the year we were transitioning from the main pit and processing low-grade material until we came into the next high-grade pit, which occurred at the start of the second quarter," said Cindy Burnett, vice president, investor relations at Capstone Mining Corp. A Yukon success story, it is an example of flaws still present in Yukon's regulatory framework, that can, however, be overcome. "Current Yukon permitting regulations do not accommodate quick development stages of a mine; Yukon government is aware of this and changes to permitting regulations are being considered for permitting to become a more dynamic regulatory process. Once in place, Yukon could become Canada's next mining center," said Darren M. Pylot of Capstone Mining. Copper North Mining Corp. is another of the significant projects waiting to come online.

"The Carmacks Copper Project is a copper-oxide deposit that will be mined and processed as an open-pit heap leach solvent extraction and electrowinning (SX/EW) operation with a target production of 30 million pounds of copper cathode per year over its seven year mine life. The project has good infrastructure: there is road access and the power will be supplied from the Yukon power grid. Subject to permitting, the Carmacks Copper Project is expected to be in production by 2016 enabling Copper North to be a near-term copper producer" said Sally Eyre, president and CEO, Copper North Mining. •

# Silver

The Selwyn basin, which hosts the majority of silver exploration and Yukon's single producing silver mine, can be described as a late Precambrian-Devonian depositional basin. Characteristics of this area include steeply dipping complex veins and faults which can be up to several meters wide. Currently accounting for 7% of exploration activity in Yukon, silver continues to be a strong focus.

Alexco's Bellekeno silver mine is in itself an incredible story. Originally established with no resource in 2006, they are now looking at a potential 60 million oz of silver. "The Bellekeno silver mine is unique; the type of mineralization that you see here is polymetallic comprising predominantly lead with associated silver, and zinc. The District, which is about 30 km long, is one of the highest-grade silver districts in the world... Apart from argentiferous (silver bearing) lead minerals, the district also hosts numerous occurrences and deposits containing silver sulfosalts and in some cases, native silver," said Nauman of Alexco. "Our guidance [for production] is 2.2 million oz/y to 2.5 million oz/y and we are on track for that. We have two additional mines that we are going to be putting into production in 2013 and within the next two years we will be at about 5 million oz/y."

Silver Predator Corp., of the Predator group, is currently in the early exploration phase in the Plata District, said to have similar silver, lead, zinc, gold mineralization to Keno Hill silver camp. •

# Interview with Clynton R. Nauman

PRESIDENT & CEO, ALEXCO RESOURCE CORP.



## Can you tell us about Alexco Resource's history with the Keno Hill Silver District?

Alexco Resource was selected as the preferred purchaser of the Keno Hill Silver District in 2006. The former mining district had significant legacy related environmental problems that were the responsibility of the government of Canada to clean up, but which also had what we felt were significant mineral resources. We were chosen because we had the ability, experience, and prior accomplishments to demonstrate that we could deal with those environmental problems, so we now have a contract with the federal government whereby they pay us to clean up the District. Alexco also has a significant exploration program underway at Keno Hill, which has already proven to be quite fruitful. We also, in the space of just three years, were able to discover, permit, build and begin operating Canada's only primary silver mine. For a company that originally started in 2006 with initially no resources to be knocking on the door of 60 million ounces of silver now, and looking forward to increasing that number significantly in 2013, we have been very successful in exploration. I estimate that we are currently adding silver ounces to our resource inventory for less than a dollar an ounce.

## You are Canada's only operating primary silver miner and have one of the

## world's highest-grade silver mines; give us some of the key facts and figures of the Bellekeno silver mine.

The Bellekeno silver mine is unique; the type of mineralization that you see here is polymetallic comprising predominantly lead with associated silver, and zinc. The District, which is about 30km long, is one of the highest-grade silver mineralized districts in the world. Apart from argenteriferous (silver bearing) lead minerals, the district also hosts numerous occurrences and deposits containing silver sulfosalts and in some cases, native silver. There are currently approximately 120 employees at the mine itself and 200 or more on site, including contractors. We have one mine in production at the present time, producing a couple million ounces of silver a year, at very high grades of between 700 and 900 grams per tonne. Our production guidance is for about 2.2 million ounces of silver in 2012 and we are on track for that. We have two additional mines that we are going to be putting into production in 2013 and within the near future our goal is to be producing about 5 million ounces of silver production per year.

## Does Alexco have any plans to diversify this portfolio in either commodity or territory?

Alexco Resource is solely focused on the Keno Hill Silver District; it is a very large district, of which we own 100%. It encompasses 35 historical mines that were in production in the 1900's and we have a long list of exploration targets and work that has to be done, so we will be engaged there for the foreseeable future. Alexco can profitably mine silver in this District with the lead and zinc by-products, and we are growing our silver resources at Keno Hill for cheaper than we can acquire those same resources off the market.

## What are some of the key challenges and opportunities of operating in the Yukon?

After working in many parts of the world

it is my view that the regulatory environment in the Yukon is very good, easily understood, rigorous but with definitive timelines, and generally responsive to project pressures. Alexco would be the example of a company that was able to discover, prove up a resource and move into production within three years; there are very few places in the world where that can be done. Energy availability is currently accommodating our needs, but could be a challenge in the future. Alexco has an advantage because we are on the grid so we have an agreement with the power supplier, Yukon Energy Corporation. Alexco has, however, incurred problems with the consistency of the supply in the past and raised the issue of energy in the Yukon in 2011 following a number of outages. Yukon Energy has worked diligently to solve the outages and inconsistencies and the situation has improved. The grid and power generating capacity of Yukon cannot easily accommodate additional large projects, which will be an expensive challenge in the future. Yukon does not have the internal capacity to support a rapidly growing mining industry. I remember when total expenditure in exploration in the Yukon was less than \$5 million dollars annually, now it is more than \$300 million and grassroots exploration and junior miners have flourished in Yukon.

## What are your predictions for the price of silver?

Silver is a mineral that has both industrial and investment value; there is no question that the industrial use of silver is accelerating, particularly in the high-technology sector. Silver prices are driven mostly by investment and are certainly gaining a renewed attractiveness as an investment. There is no clear end to that in the present time and silver is still trading at a fairly robust price.

## How is Alexco ensuring environmental sustainability in its operations?

Alexco Environmental Group, a separate but related company to our exploration and



mining group, has been instrumental in organizing and cleaning up approximately eight mine sites and various areas in North America, working for both companies and the government. At Keno Hill we have already reduced the contaminant load in the surrounding creeks and rivers by more than 80% and we are driven towards executing a project at Keno Hill to clean up the entire District which extends for more than 100 square kilometers. We want others in Canada to point to, and compare to our leading example of reclamation of long standing legacy liabilities. We're happy to have as our partner the government of Canada and recognise they too are particularly interested and enthusiastic about this.

**Your operations are in the territory of Na-Cho Nyak Dun, tell us about this relationship?**

Alexco has been in the traditional territory of the Na-Cho Nyak Dun since 2006. We have an agreement and relationship in place which provides for the normal preferences in terms of employment and opportunities, but more specifically we try to create initiatives where the Na-Cho Nyak Dun can start services with our capital and offer those services to us and even other clients. It has been a particularly good relationship; there are ongoing meetings where they are updated and informed about our project and the industry as a whole. The Na-Cho Nyak Dun are actually a participant in the two biggest contracts we have in at Keno Hill; the underground mining and catering contracts in the District.

**What is your vision for Alexco Resource?**

Alexco Resource originated with two people in 2006 and has currently expanded to over 200 people. The vision for Alexco is to continue to de-risk our mining business by putting more mines into production, increase silver production to at least 5 million ounces per year, to get our environmental business to a point where it is doing at least \$20 million dollars a year in revenues, all while maintaining significant margins. •



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# Interview with Dale Corman & Paul West-Sells

CHAIRMAN, CEO, AND DIRECTOR & PRESIDENT AND COO, WESTERN COPPER AND GOLD CORP.

**Western Copper and Gold Corp. has now split into three different companies; can you outline the decision behind this?**

**DC:** In September of 2011, a decision was made to spin out our three principal projects to secure shareholder value. Casino, in Yukon, was our premier project and the others were not receiving the attention they warranted. To give each project its due resources, we created Copper North Mining Corp. to cover the Carmacks copper project and the Redstone copper deposit, and NorthIsle Copper and Gold Inc. has taken on the Hushamu copper deposit; all three companies have the same shareholder base.

**How has the Casino project progressed in the last year and do you foresee any challenges to secure the permitting that you require?**

**PW-S:** The Casino project pre-feasibility study in April 2011 established the project as a \$1 billion NPV (net present value) project at long-term conservative commodity prices; \$2.50/lb for copper and \$1,100/oz for gold. The last 12 months have been working towards our feasibility study and permitting. The road infrastructure to the project was not an issue, but the key

ingredient has been the need to provide 120 MW of electricity. This challenge has now been addressed in partnership with the Yukon Energy Corp. by sourcing Liquefied Natural Gas (LNG) from Fort Nelson in northern British Columbia. Interest is being shown from other mining companies in the area on how we will solve the energy challenge.

The feasibility study will be completed by the end of 2012, and we are targeting the first half of 2013 for submission of a permit application. The Yukon Territory has full control over its resources and permitting of those resources; this is not always the case in other Canadian jurisdictions. The Canadian government has recently stipulated a two-year timeline on environmental assessments; Yukon already has a time-line in place. We do not foresee any major challenges on securing permitting; we expect to invest between \$10 million to \$20 million on the work involved with the development of the permit application.

**Can you expand on the impact the Casino project will have on the Yukon and Canadian economies?**

**PW-S:** The main economic impact of Casino will be an increase of 20% in Yukon's GDP, which is remarkable. Perhaps more significant is that the project will require a construction force in excess of 2,000 and a full-time labour force of 400 to 500 during operation in addition to service jobs created to cater to the project. Over the 23-year mine life of Casino, the projected input to the Canadian economy will be \$9.8 billion.

**Do you feel that investors fully appreciate the potential of the Casino project?**

**PW-S:** Western Copper and Gold is always working to deliver the message to potential investors that this is a great project going forward and that the future of commodities such as copper and gold is very bright.

**What are the reasons for your under-valuation, and how has the dip in commodity prices affected you?**

**PW-S:** There are two points to be considered in our under-valuation. First, the pressure on the junior mining space is immense despite the healthy market price of copper and gold. Second, the down time between pre-feasibility and permitting is not particularly exciting and is arguably one of the reasons for our market price depression. When there is nothing to announce, attention dwindles. What we are doing is trying to be diligent with our current and potential investors by keeping them updated and reassuring them of our progress. The overall dip in commodity prices does not worry us as they are still very healthy and all of our studies have been using long-term conservative commodity prices. •

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Resource	Quantity	Category
Gold*	8.4	M oz P+P Reserves
Gold*	0.5	M oz M&I
Gold*	9.0	M oz Inferred
Copper*	4.4	B lbs P+P Reserves
Copper*	0.3	B lbs M&I
Copper*	5.4	B lbs Inferred

Significant Gold, Copper, Molybdenum and Silver Resource in the Yukon, Canada

\* See NI 43-101 technical report, May 2011 for full resource and reserve disclosure

# Interview with Sally Eyre



PRESIDENT & CEO, COPPER NORTH MINING CORP.

## The Carmacks Copper Project is your flagship project. Can you give more details of the resource base and developmental time line of the project?

The Carmacks Copper Project is unique; it is a copper-oxide project and, provided permitting is in place, production is anticipated within three years enabling Copper North to be a near-term producer. It will be an open-pit heap leach SXEW operation with a targeted annual production of 32 million lb; will have a mine-life of approximately six years; and our capital expenditure investment will be \$150 million subject to an updated feasibility study in July 2012. It is a ready-made project with good road access, infrastructure, and our power source will be Yukon power grid. Copper North will be taking the project into production. The value driver for the project will be to secure permitting; we will then engage in fund raising and all mechanisms of financing will be considered, and take the option that is most cost-effective to raise capital. In our most recent news, Copper North re-engaged our engineers to look at some design changes to the heap and we confirmed that an assessment under YESAB would be required. Our time frame now for developing Carmacks is determined on the scope of assessment by YESAB, which will take between nine to twelve months from May 2012. We are confident that the assessment will be efficiently managed as the whole project was environmentally assessed successfully in 2008. Both Carmacks and Redstone are high grade making them robust at lower copper prices, but we are optimistic that copper prices will be at \$4 in 2012.

## Tell us about your Redstone Property and its geological characteristics?

On our Redstone property we have claims and leases that extend in a north-west south-east direction over 160 km. Based on a report from the University of British Columbia, and a geophysics program of 2005 from Lumina Resources, in summer 2012 we are investing \$800,000 on geophysics to determine where our drill targets will be for 2013. At our Coats Lake deposit we have an historic inferred mineral resource contained copper-metal of 2.9 billion lb, high grade 3.92% copper. From an investors' viewpoint, the interest of the Redstone project is that its deposit type is sediment-hosted stratiform copper, a very large unexplored copper belt with significant silver in North America that merits further work. Redstone has geological similarities to large projects in Central Africa's copper belt. The Redstone project is remote, but has potential winter road access to the McKenzie highway.

## How do we reverse the current 'doom and gloom' feel in the junior market?

Companies that are asset-rich and have good management

teams will survive this current junior market depression; majors are still exploring but the first activity to be reviewed when times are hard is exploration. Europe has to overcome its current financial crisis, then we will see capital flows returning to Canada which will re-invigorate the junior market. It is the juniors with marginal projects that will suffer in this current downturn. The Securities Commission and the Toronto Stock Exchange have made big strides to tighten up the current market though; the pivotal turning point was the introduction of NI 43-101, imposing uniform standards for investor confidence.

## What have been your relations with First Nations in Yukon and Northwest Territories; and what is your vision for Copper North Mining Corp. in Canada?

Copper North is developing its relationships with all relevant communities and are continuing extremely constructive dialogue. We are a pure copper company that is a near-term copper producer at Carmacks, and have great potential upside in the Redstone property. These two assets are capable of enabling the company to progress into a pure junior copper company that has the vision to grow into an intermediate copper company. •

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# Interview with Darren M. Pylot & Cindy Burnett

PRESIDENT AND CEO, AND DIRECTOR  
VICE PRESIDENT, INVESTOR RELATIONS, CAPSTONE MINING CORP.

## What is the current status of the Minto mine?

**CB:** In 2012 the Minto mine is forecast to produce 38 million pounds of copper. In the early part of the year we were transitioning from the main pit and processing low-grade material until we come into the next high-grade pit, which occurred at the start of the second quarter. Currently, our production is 3,600 mt per day; our exploration spent is standing at \$5 million for 2012; and our capital investment for the year in addition to exploration will be \$30 million, which will include camp renovations and going underground.

## What are the key challenges you have found operating in Yukon; and do you feel that the title attributed to Yukon of being the next mining frontier is justified?

**CB:** Sourcing the right people has been a challenge as there is a lot of competition with other mining operations, although we have recently seen a softening of the labor market and have been able to attract an excellent team at Minto. A further challenge in Yukon is permitting; the law was changed several years ago resulting in overlap between the agencies, and the current structure requires us to permit each pit on the property versus the entire property as in many other jurisdictions. The higher cost of mining in Yukon does require high-grade discoveries. There has been a lot of exploration, especially with gold, rising commodity prices has been a contributory factor to exploration development in Yukon.

## Is there a saturation of junior exploration companies in the Canadian market; and with a dip in recent commodity prices, current demand from China, and an overall decrease in the mining market and capital mining stocks, do you feel

## this has contributed to investors' keenness to place their money in producing mines?

**CB:** There does seem to be an investor swing to producing mines and as a result of our growth we are meeting with investors that we would not have seen previously. In 2011 our focus switched to a large development project in addition to our producing mines and the stance of some investors was to be more cautious when they were looking at us as a developer rather than a producer.

**DMP:** Over the past decade there has been considerable investment in the mining space and a lot of exploration success by junior companies. With no guarantee of success investors questioned whether these junior companies had the management teams and resources to forward projects, and the market was left with many projects requiring development. Investors turned their attention to producing mines who possessed the required expertise and cash flow, and perceived as safer investments.

**DMP:** It is the market's perception of a slow down in China in 2012 and other factors, for example, European problems, which have affected commodity prices and investors' confidence in placing funds into the risk area of commodities; this has taken its toll on the share prices of Capstone Mining, and others.

## What initiatives does Capstone Mining have in place for best practice and employment of First Nations in Yukon; are there any you would like to showcase?

**CB:** We operate under a cooperation agreement with Selkirk First Nation: setting out various principles for use of the land, covering employment levels, local opportunities. Some of the initiatives we have with Selkirk are training programs through Yukon Mine Training Association, preferential

personnel arrangements with Selkirk First Nations and Selkirk based companies, and contributing to the development of the local Selkirk First Nations community.

**DMP:** Capstone Mining has great pride in a successful partnership with Selkirk First Nation who are the landowners of the Minto mining deposit. Three hundred people are employed at the mine site, a large proportion of which are northerners, including northern first nations and the local Selkirk community.

## What is your vision for Capstone mining in Canada and abroad?

**CB:** Our vision is to continue to grow in mining-friendly politically safe jurisdictions, and in areas where the permitting process is transparent and known to us; preferentially we would look to Chile or Mexico. Capstone Mining is looking to areas where we can ensure we have the social license to operate.

**DMP:** We are currently moving Kutcho, located in northwest British Columbia, to production status: the project involves two First Nations, creating much needed employment, and economic benefits for the local people. Yukon is a safe environment to operate and we continue to look for further opportunities in Canada.

## Amongst all your properties is there a breadwinner for Capstone Mining; and can you give more detail on the breakdown of grades for Minto and Cozamin?

**CB:** The annual output of our properties Minto and Cozamin are about equal; Cozamin is lower cost and has more upside exploration remaining. The high grade that can be accessed will always be mined first as we go through a mine life; over time the grade will tail off in both Minto and Cozamin.

## How will current international market conditions affect the federal government's stance of investing in Yukon and territories?

**DMP:** The federal government has its own mandate and it remains to be seen whether it will affect its investment in Yukon and territories; however, it will defer investment in Yukon from public companies. Yukon and territories are so remote, and without high commodity prices and demand, investment will be redirected to areas with easier infrastructure and lower labor costs, such as South America. •



# Interview with John Fiorino

CEO AND DIRECTOR, AM GOLD INC.

## What is the current project stage of your Red Mountain project?

During the past season on the Red Mountain project we drilled 8,070 metres and significantly expanded the strike length to over 1 km and up to 600 metres in width. The current NI 43-101 inferred resource estimate has been projected to approximately 900 metres strike length, 300 metres in width and 300 metres in depth and remains open in all directions and at depth. Our deepest hole to date was 526 m of 0.75 g/t Au, true depth was approximately 520 m and was mineralized from surface and ended in gold mineralization. Currently our inferred resource is only projected to the top 300 metres; therefore we know that there is significant potential for expansion, both laterally and at depth. This is a porphyry, referred to as a Tombstone intrusive unit, and the deposit is predominantly gold with silver credits. Additional ICP needs to be performed before considering whether to introduce silver into a future technical report for the property. To date there is also nominal copper on the property. Copper is preg-robbing and inhibits gold recovery often requiring two to three circuits in mill build out, a costly expenditure when it comes to the capital expenditure of a project.

## Are there currently any operating mines or advanced deposits that have similar geology to that of Red Mountain?

Red Mountain is in the exploration stage but we believe that the Red Mountain project has similar geology to the Dublin Gulch Project held by Victoria Gold 29 km to the east, and Kinross Gold's (K.tsx) Fort Knox Project located due west across the Yukon border in Fairbanks, Alaska.

Kinross has been in production for the last 12 years with an historical cash-cost between \$400 to \$550 per oz; this year's projection as per their website is a respectable \$692 per oz. Victoria Gold is approximately 0.63 g/t Au, depending on the cut-off used. Kinross' average grade proven and probable is 0.43 g/t Au, and inferred grade is 0.40 g/t Au.

Many factors need to be considered before looking at just the grade to assess a project. Amongst those factors are the strip ratio, (waste to ore ratio), metallurgy gold recoveries, sulphides versus oxides, heap leach versus flotation or milling; there is a massive difference in capital expenditure between one circuit or three circuits, often elements such as copper need to be removed in order to facilitate decent recoveries of gold. Often the more elements in a resource the more complex the metallurgy and capital expenditure costs. These factors are not always taken into consideration by the markets on an exploration target. Arguably, we are grossly undervalued. Not taking our Peru property into account, our Red Mountain project is currently trading at approximately \$2 per oz gold in situ, some of our local peers are currently trading between \$15-40/oz gold in situ across all NI 43-101 categories.

## Do you feel that investors still see the Yukon as Canada's next mining's frontier?

There is still strong investor interest in Yukon, but the investor is now being more cautious across all mining jurisdictions. The Yukon remains extremely under-explored with massive potential. The Yukon has recently gained self-governing status from the federal government, which may decrease the processing time of permits and applications. Power and infrastructure can be a major challenge to any project regardless of whether in the Yukon or elsewhere. The majority of deposits do not always have road access or power within 50 km. There is a misconception that the Yukon has undeveloped infrastructure. While that is true in many parts of the Yukon, at Red Mountain we have a highway 48 km from the property and road access right to the property. We also have a hydro electric dam located only 54 km from our project. If Dublin Gulch reaches production, power will only be 29 km from our project. In mining this would be considered a relatively short distance.

## How has AM Gold overcome the many junior companies vying for investor attention?

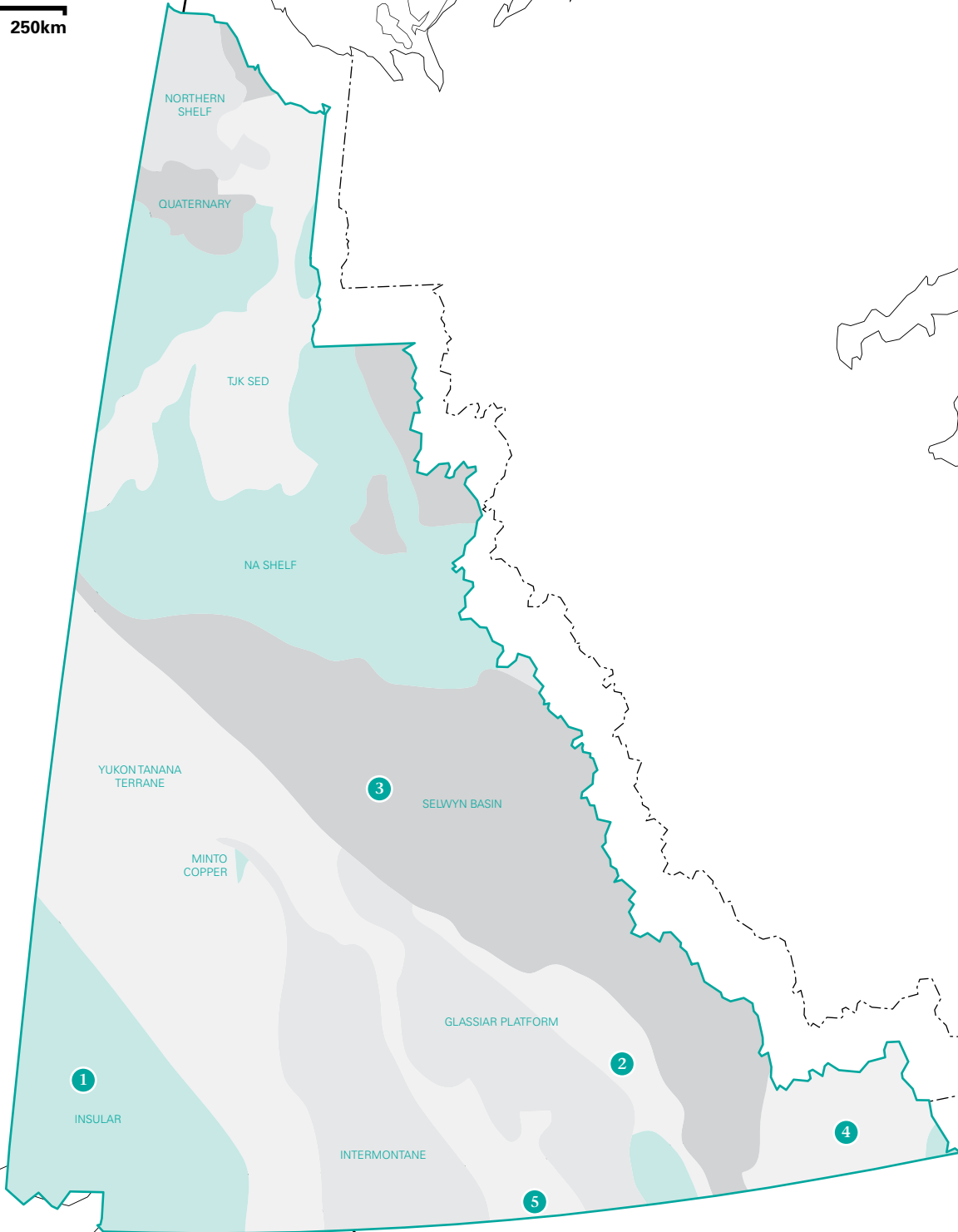
At our primary project, Red Mountain, we drilled 12,000 metres in two short seasons and went from a grassroots project, to an inferred resource estimate of 127 million tonnes grading 0.48g/t, approximately 1.95 million ounces of contained gold. This inferred resource was achieved with a very limited budget of just over \$5 million. The long mineralized gold intercepts is what has allowed us to add significantly to our resource with a minimal amount of drilling and in turn will give AM Gold's Red Mountain a competitive advantage in a crowded junior exploration marketplace as the project advances.

## Do you have a final message for our readers?

Governments globally are implementing fiscal and monetary policies and monetizing debt. In turn I believe we will see \$2,000+ / oz gold in the near future and possibly much higher. Keep in mind many of the porphyries now in production are not new discoveries but rather older ones with economics that did not work at lower gold prices.

Based on a recent survey of global mines and deposits, in the past 14 years globally there have been only 99 new discoveries with an approximate 2m oz inferred or greater gold discovery, the majority of which are copper gold porphyries. The Red Mountain project is predominately a gold deposit and is one of those 99 projects. •

250km



"This map is intended for illustrative purposes only and is not intended for use as an investment tool"

- 1** COMPANY  
**Prophecy Platinum Corp. (TSX-V: NKL)**  
PROJECT NAME  
**Wellgreen**  
MINERAL TYPE  
**Nickel-Platinum Group Elements**  
PROJECT TYPE  
**Exploration**  
NI 43-101 INFERRED RESOURCE  
**446.6 million mt @ 0.31% Ni, 0.25% Cu, 0.02% Co, 0.16% Au, 0.38 g/t Pt & 0.33 g/t Pd**  
CUT-OFF GRADE  
**0.2% NiEq**  
NI 43-101 INDICATED RESOURCE  
**14.4 million mt @ 0.68% Ni, 0.62% Cu, 0.05% Co, 0.51% Au, 0.99 g/t Pt & 0.73 g/t Pd**  
CUT-OFF GRADE  
**0.2% NiEq**

- 2** COMPANY  
**Yukon Zinc Corp.**  
PROJECT NAME  
**Wolverine**  
MINERAL TYPE  
**Zinc**  
PROJECT TYPE  
**Mine**  
PRODUCTION  
**Milling Capacity of 1,700 mt/d producing zinc, copper and lead. Full production expected in early 2013.**

- 3** COMPANY  
**Overland Resources Ltd. (ASX: OVR)**  
PROJECT NAME  
**Base Metal (Andrew Zinc Project)**  
MINERAL TYPE  
**Zinc**  
PROJECT TYPE  
**Exploration**  
NI 43-101 INFERRED RESOURCE  
**556,000 mt @ 4.2% Zn & 0.6% Pb**  
CUT-OFF GRADE  
**2% Zn**  
NI 43-101 INDICATED RESOURCE  
**5,437,000 mt @ 6.1% Zn & 1.4% Pb**  
CUT-OFF GRADE  
**2% Zn**  
NI 43-101 MEASURED RESOURCE  
**1,769,000 mt @ 5.3% Zn & 1.6% Pb**  
CUT-OFF GRADE  
**2% Zn**

- 4** COMPANY  
**Endurance Gold Corp. (TSX-V: EDG)**  
PROJECT NAME  
**Bandito**  
MINERAL TYPE  
**Rare Earth Elements - Niobium**  
PROJECT TYPE  
**Exploration**

- 5** COMPANY  
**LARGO RESOURCES LTD. (TSX-V: LGO)**  
PROJECT NAME  
**NORTHERN DANCER**  
MINERAL TYPE  
**TUNGSTEN-MOLYBDENUM**  
PROJECT TYPE  
**EXPLORATION**  
NI 43-101 INFERRED RESOURCE  
**201.2 MILLION MT @ 0.089% WO3 & 0.024 MO**  
CUT-OFF GRADE  
**0.06% WO3**  
NI 43-101 INDICATED RESOURCE  
**192.6 MILLION MT @ 0.100% WO3 & 0.029% MO**  
CUT-OFF GRADE  
**0.06% WO3**  
NI 43-101 MEASURED RESOURCE  
**30.8 MILLION MT @ 0.114% WO3 & 0.030% MO**  
CUT-OFF GRADE  
**0.06% WO3**

# Zinc

Active exploration for lead and zinc in the late 1960s led to the staking of the Selwyn (Howards Pass) district in 1972. Recent exploration initiated in 2005 increased the indicated resource to 154.4 million mt at 5.35% zinc, 1.86% lead and the inferred resource of 231.5 million mt at 4.54% zinc and 1.42% lead, making this potentially the largest zinc deposit in the world. The third of Yukon's producing mines, Yukon Zinc Corp. is an example of increasing Chinese interest and investment in Canada.

"In March 2012, the Wolverine mine reached commercial production achieving 60% of its design capacity, 1,020 mt/d; we plan to reach full capacity of 1,700 mt/d by the end of 2012 or early 2013. Wolverine has a mine life of nine years, and has five metals: concentrates of lead, zinc, copper, silver, and gold," said Jing You Lu, chairman and CEO. "China lacks natural resources and we see Chinese investors coming to North America to secure these. An illustration of Yukon Zinc's commitment is the Wolverine Mine project; Yukon Zinc would like to thank the mining fraternity for its support in achieving this," said Lu. •

# Rare earths

Rare earths can be found in Yukon as the global market seeks out alternative sources following China's export restrictions. Canada's southern neighbor, the United States sourced 79% of its rare earth mineral supplies from China as recently as 2010. Though rare earths are fairly abundant in the earth's crust, discovered minable concentrations remain scarce.

Endurance Gold Corp. is currently in its very early stages, but demonstrates further potential in Canada's North. "[Rare earth] projects in North America that are well advanced or coming into production are dominated by light rare earths; the projects in Canada are mainly heavy rare earths. The global need for rare earths, especially heavy rare earths, is escalating

because of their value in clean technology," said Robert Boyd, president, CEO and director, Endurance Gold. "Currently, we do not have a resource at Bendito; it is an exploration project which is a soil anomaly rock sample and trenches that indicate grade ore waves of high percentage rare earth of which 11% is heavy rare earth compound, and on top of that the medium-to-light rare earth is 11% neodymium, which is in high demand and commands a higher price. We now need to drill to establish a resource."

As of 2011, China still had the largest rare earth reserves in the world, more than four times that of the United States. As the demand for rare earth minerals continues to increase, new deposits will likely play a continually important role. •

# Platinum

South Africa is undeniably the world's platinum hub, accounting for more than 70% of global production. Yet continued labor unrest could make other regions look more attractive. Yukon, while not holding the same vast reserves, offers some opportunities.

John Lee, chairman of Prophecy Platinum Corp. said: "The metallurgical study [at our Wellgreen property] in May showed very promising initial results of recoveries of practically all the metals listed in this project, including copper, nickel, platinum, palladium, gold, and cobalt... The project is deemed to be highly prospective in its economic viability; the PEA is only preliminary and much work has yet to be done. The Prophecy team and the board of directors feel that Wellgreen is a viable project that can be taken into production; all the ingredients are there... According to pre-feasibility studies, a production decision will be made in 2016. Construction will take two and a half years: 2019 would be an envisaged production year having carried out an economic study; secured equity; have permitting in place; and sourced the right people and partner." As the demand for platinum increases, the price of platinum is expected to continue to rise making this a commodity to watch in the near term. •

# How to Build a Mine in Canada's North

By Yukon Zinc

Yukon Zinc Corporation's Wolverine Mine is on track to reach full production of 1,700 tonnes per day in early 2013. As of October 2012, site production averaged approximately 1,600 tonnes per day (approximately 90% of design). A significant reason to the steady increase in mine tonnage rates is the integration of new mining equipment such as jumbos, haul trucks, scoops and bolters. In addition to the mine's underground, the company has also focused on new initiatives in mill processing, environmental treatment and pre-employment training.

In the mill complex, the Yukon Zinc teams have continued utilizing internal and external resources and technology such as a process control system and metallurgical test work to increase grade and recovery rates of metals. During October, the company milled over 46,000 tonnes of ore and continued to truck its concentrate to British Columbia ports for export to international markets.

In order to adequately hold water from the underground and mill process complex, the company completed a lift of its fully lined tailings facility to its ultimate design height (capacity ~1.4 Million m<sup>3</sup> of water). The tailings facility has been built to high standard and is designed to withstand a 1:10,000 year seismic event. All tailings effluent will meet stringent discharge re-

quirements as set out in the company's Water License prior to being released.

To help ensure successful water treatment, Yukon Zinc successfully completed pilot water treatment test work in 2012. The results successfully demonstrated the ability to reduce all metal contaminants, including Selenium, and organic/in-organic contaminants below the water discharge criteria. The water is treated by passing it through an Electro-Biochemical Reactor (EBR) system, a new technology developed by Inotec Inc. from the University of Utah. Once operational, the in-house environmental department will treat all contaminated water at site. The environmental team includes local Yukon employees and the company knows that a strong local workforce is essential to Yukon Zinc being successful now and as the company grows in the region.

During 2012, Yukon Zinc's human resources and community relations personnel facilitated workshops called Groundwork for Employment in nearby Yukon communities of Ross River and Watson Lake. The sessions helped prepare candidates, the majority who were Kaska First Nation, for employment success. Potential employee candidates learned about the working conditions and expectations at Wolverine Mine and also toured the Mine and its various departments. •

"Nunatta Environmental Services Inc. was founded in 1999, and we are a 100% Inuit-owned company. We primarily clean up fuel spills, which leaves us with huge amounts of contaminated soil. We then take this soil and put it into a landfarm, which is a cell with a liner that is built into the ground, so that the earth and water cannot percolate into the ground. This soil is aerated on an annual basis, and nutrients are also added; this process will ultimately neutralize the contaminants. However, Arctic conditions can make this extremely challenging; in the second week of August this summer we were aerating one of the cells, and it was still frozen close to the bottom. We are currently working with a team from the University of Saskatchewan on a way to accelerate the remediation of soil under Arctic conditions. The product is called biochar, and after two years of preparation, we are now testing it in the field."

**Axel Have, Vice President, Nunatta Environmental Services Corp.**

"Some clients come to us and think we can simply scale down the model for a multimillion-dollar environmental project to fit their exploration needs, but that is not the case. In doing that, the client does not get what they need, the environment is not studied properly, and regulators and stakeholders do not get the right information. This leads to project delays and ultimately higher project development costs. From an environmental and social perspective, we have developed an environmental tool kit approach for exploration projects, which allows us to tailor our services to the needs of the client, the needs of the project, and what stage of the project lifecycle they are in. It is this ability to customize and be nimble that makes us a boutique company; the business model of a large multidisciplinary engineering company does not allow for this personalized attention, and that opens up the niche for us."

**Scott Weston, Mining Sector Leader, Hemmera**

"There are many older aircraft in Canada's North because they have lower acquisition costs, but can still land on short runways and get the job done. Part of our big selling point is the efficiency of our aircraft: the amount of weight we can deliver to a company per gallon of fuel burned is unmatched in this size of aircraft. Additionally, we are very stringent in following proper policies and procedures for dealing with portable fueling. Larger aircraft have a fuel truck pull up and pump the fuel in, but smaller aircraft often fuel out of barrels, so we make sure we keep spill kits on hand, and generally push our staff to maintain high standards of safety in refueling."

**Myles Cane, Vice President and General Manager, Summit Air**

"The government and all geoscience institutions are aware that due to warmer temperatures in the north the structure of the permafrost is changing; it affects vegetation, and the territory. Currently, the debate is to ascertain what is the cause of this change of character to the permafrost; GSC has a geoscience program focusing on the impact of climate change in the north and how to adapt. Territory and provincial governments, plus many research centers, are also involved in climate change research."

**Donna Kirkwood, Director General, Central and Northern Canada, Geographical Survey of Canada**

# Interview with Robert Boyd



PRESIDENT, CEO AND DIRECTOR, ENDURANCE GOLD CORP.

## Can you give us a brief introduction to Endurance Gold Corporation?

Endurance Gold Corp became a public company in 2005. Members of the board, including myself, and insiders, own 52% of the shares of the company. I became President and CEO at Endurance Gold eighteen months ago. The company was at the stage where it needed re-vitalizing with the acquisition of new projects, focusing on early stage exploration. Our acquisition efforts in 2010 and 2011 were initially focused on gold but we then saw the opportunity to acquire a rare earth elements (REE)-niobium-nickel-copper project in Yukon, which we called Bandito. We structured the option on this property in two stages and have the rights to acquire up to 75% interest.

## Endurance focus has been gold projects; what made the Bandito property with its REE-niobium-nickel-copper interesting to you?

When searching for new gold exploration and acquisitions Endurance Gold was not successful in sourcing a suitable gold project in a very competitive market for gold project acquisitions. We then focused our company strategy towards intrusive hosted deposits, which create large mineral systems with potentially profitable deposits, and the Bandito property was such a system. We saw potential in Bandito for a very large intrusive related alteration and mineralizing system. As a result of our 2011 program the project has turned from a conceptual IOCG nickel-copper with REE system to primarily a REE-niobium-tantalum system. The nickel-copper prospects in Bandito are now a secondary priority. We continue to evaluate our portfolio of intrusive related gold projects since we believe that both Bandito and these projects will generate value for our shareholders.

## Are there any current operating mines or advanced deposits that are similar to Bandito; and have you had to educate your investors as to the significance of REE?

Based on this past year's work Bandito is emerging as being a large intrusive-related system of similar potential size to Avalon's Nechalacho project in the Northwest Territories, and Quest's Strange Lake project in northern Quebec, both having very strong geological analogies to Bandito. Rare earth deposits, especially those with a high percentage of the "heavy" rare earth elements like Bandito, are potentially very strategic assets, and having these other deposits as analogies, assist in educating our investors on REE and their strategic potential.

## How has China's restriction on their export of rare earth affected investor interest? What is the current timeline for the project?

There is a constraint in rare earth supply in the western world as a result of China's export restrictions on rare earth products. However, China still sees a need for new international supply of

the "heavy" rare earth elements and is actively looking outside its borders for new "heavy" rare earth supply. The global need for rare earth, especially heavy rare earth, is escalating because of its use in high tech and green energy technology. The exploration sector of our industry is responding to the global needs of all rare earth elements that has resulted from China's export restriction. Projects in North America that are well advanced or coming into production are dominated by light rare earth; However, many of the projects in Canada especially northern Canada, have a high percentage of heavy rare earth, which is where the strategic need lies for new development projects.

Currently, we do not have a mineral resource at Bandito; since it is an exploration project at the trenching and soil anomaly stage. We have up to 3.32% rare earth oxides over 4 meters in trenches, with a high percentage "heavy" rare earth of 10.3%, and 9.8% neodymium oxide one of the high demand light rare earths for the magnet business with a higher price category. We now need to drill to establish a resource. Both Bandito and Elephant Mountain, Alaska are drill-ready; permit applications have been received for Bandito, Yukon, and we do not foresee any problems with permitting Elephant Mountain. •



Endurance Gold Corporation is a precious and rare metals exploration and development company focused on the acquisition, exploration and development of highly prospective North American mineral properties with the potential to develop world-class deposits.

### DRILL STAGE PROJECTS - INTRUSIVE SYENITE HOSTED

**Bandito, Yukon** – option to 75% – Potential for large tonnage Rare Earth - Niobium - Zircon deposits – Kilometer scale REE-Nb soil anomalies – Trench sampling up to 2.3% TREO + Y over 6 meters. Prospecting of soil anomalies has discovered grab samples up to 3.5% TREO + Y with 76% heavy rare earth oxide.

**Elephant Mountain Gold, Eureka, Alaska** – option to 100% – Road accessible Potential for large tonnage intrusive-hosted Gold deposits like Kinross' Fort Knox. Kilometer scale gold-arsenic soil anomalies with values up to 1540 ppb gold. Historic drill hole with 0.514 grams per tonne gold over 99 meters.

Suite 1700, 750 West Pender Street, Vancouver, BC V6C 2T8  
Tel: 604 682 2707 info@endurancegold.com

# Interview with John Lee

CHAIRMAN, PROPHECY PLATINUM CORP.



## Can you give a brief history of Prophecy Platinum and its key milestones?

Prophecy Platinum was spun-off from Prophecy Resource in July 2011, having acquired the Wellgreen project in Yukon, which can be classified as a brownfield property with 50 years of history. Over the last 12 months much of our work at Wellgreen has been to consolidate: re-compile, digitize and modernize the in-house data, including drill, assay, soil, and previous mining and permitting data; followed by the compilation of a strategy to advance the project. During this 12 month period we have arguably carried out the most extensive drilling program in the mine's history, completing 15,000 m of drilling. In addition, we have initiated other areas of the project: economics; transportation; concentrate marketing; metallurgy coverage; mine planning; engagement with First Nations; and Yukon government on permitting. We released a preliminary economic assessment in July 2012 and in the fall brought on a new executive leadership team that includes CEO Greg Johnson, formerly with South American Silver and NovaGold and COO John Sagman, formerly with Capstone, Vale and Xstrata.

## With 50 years of research carried out on Wellgreen, why is it only being developed now?

The mine was discovered in 1952 and Hudbay owned the property for 20 years and they, and subsequent owners, were never able to stream together occurrences of high-grade nickel PGM to make a viable block of resources to develop commercially. Prophecy looked at the project from a more holistic approach. There are over 700 drill holes with different degrees of mineralization, low and high grade. Evaluating the project from a bulk tonnage open-pit perspective mine, and that we currently have buoyant commodity prices, the Wellgreen project becomes viable. In the 1970s and 1980s this was not the case as commodity prices were very low.

## Can you give a brief outline of the key facts and figures from your latest results at Wellgreen, and how do you envision your new role in the company?

These results were part of the ingredient towards the economic modeling of the project. We have released two significant announcements over the last 60 days: the metallurgical study in May showing very promising initial results of recoveries of practically all the metals listed in this project, including copper, nickel, platinum, palladium, gold, and cobalt; and in July we incorporated those recovery numbers from the metallurgical study into a preliminary economic assessment (PEA), which has demonstrated the project to have an NPV of over \$1.8 billion, and an IRR at 27% using today's metal prices. The project is deemed to be highly prospective in its economic viability; the PEA is only preliminary and much work has yet to be done. Upon the PEA announcement our trading stock increased by 30%.

## Will Prophecy be taking the Wellgreen mine into production itself?

The Prophecy team and the board of directors feel that Wellgreen is a viable project that can be taken into production; all the ingredients are there including a leadership team with the proven experience. We have preliminary support from First Nations and the government; Wellgreen has good infrastructure already in place, is adjacent to the highway and in close proximity of Haines deep-sea port; and it is a large project with a respectable grade metallurgy and a high grade area for extraction and early revenue generation. According to pre-feasibility study, a production decision will be made in 2016. Construction will take 2.5 years: 2019 would be an envisaged production year having carried out an economic study; secured equity; have permitting in place; and sourced the right people and partner.

## What are the key concerns that Prophecy has operating in Yukon?

Wellgreen is an excellent project situated in a politically safe jurisdiction, and friendly local communities; undoubtedly, our access to road and transport infrastructure is better located than other Yukon mining projects. Yukon's harsh weather conditions protract mine construction,

necessitating equipment continuously running for 24/7; however, Prophecy has had experience of building a mine in Mongolia with temperatures of -50 degrees. Power is another concern for Prophecy in Yukon, which can be overcome by the grade of the project offsetting the cost of a diesel-powered operation; undoubtedly the project would be even more viable if alternative power sources can be found to diesel, for example, liquefied natural gas. There is a power grid 200 km from Wellgreen but the issue is being connected to the grid and Yukon Energy having sufficient surplus power to supply.

**Have you found it difficult to educate investors in Yukon of the potential of other minerals than gold; and have platinum price trends affected the economics of the Wellgreen project?**

A great asset in stimulating investor interest has been Prophecy's NI 43-101 on Wellgreen; this has indicated a resource of 10 million oz of platinum palladium, and gold in the inferred category, which we are in the process of grading into measure indicated categories. The calculations on the current spot price of \$7.50 for nickel and \$1,400 for platinum the project turns a positive NVP and IRR. Using more relaxed pricing model assumptions based on long-term metal prices of say \$10 nickel and say \$1,800 platinum, you are looking at close to 40% IRR and \$3 billion NVP. It is difficult to assess what the price will be when the mine is commissioned in 2019, but the project is robust enough even at today's spot price. Looking forward, Prophecy is confident that platinum will revert to its historic pricing structure which is 30% premium to gold; currently, demand for platinum outstrips supply.

**What is the vision for Prophecy Platinum?**

Prophecy Platinum believes that Wellgreen project is one of very few large-scale mining projects that is feasible at today's metal prices; it has all the right ingredients and the potential with investor support to be in production within this decade. Wellgreen's construction and production will bring hundreds of jobs to the province. Prophecy will help train First Nation groups, be in harmony with the communities, and have the safest environmental standards. •



# Base & Precious Metals from Canada's North

**\$2.4 BILLION NPV @ 8% DISCOUNT**

**32% IRR WITH A CAPEX OF \$863M**

**37 YEARS MINE LIFE**

**1 MILLION oz. INDICATED + 11 MILLION oz. INFERRED PGM+AU**

**WELLGREEN (PGM NICKEL) YUKON, CANADA**

**OTC-QX: PNIKF | TSX-V: NKL | Frankfurt: P94P**

**[www.prophecyplat.com](http://www.prophecyplat.com)**

\* Inferred category. Based on resource estimated at 0.4% Ni1q cut-off, and 100% metals recoveries, July 2011 NI 43-101 Technical Report by Warding Engineering. Commodity pricing used in this technical report was obtained from the LME three-year trailing average ended July 4, 2012. Platinum \$1,587.97/oz, Palladium \$587.28/oz, Nickel \$9.46/lb, Copper \$3.56/lb, Cobalt \$36.23/lb and Gold \$1,177.81/oz. The PEA is preliminary in nature, that it includes Inferred Mineral Resources that are considered too speculative geologically to have economic considerations applied to them that would enable them to be categorized as Mineral Reserves, and there is no certainty that the PEA will be realized. A mineral reserve has not been estimated for the project as part of this PEA. A mineral reserve is the economically mineable part of a Measured or Indicated Mineral Resource demonstrated by at least a prefeasibility study.

# Interview with Jing You Lu and Crystal Zhang

CHAIRMAN AND CEO;  
GM, CORPORATE COMMUNICATIONS AND ADMINISTRATION, YUKON ZINC CORP.

**Can you give our readers a brief introduction to Yukon Zinc Corp?**

**CZ:** Yukon Zinc Corp. was established in Vancouver in 1993 under the name Expatriate Resources Ltd., company name was changed to Yukon Zinc Corp. in 2004. In 2008 the Jinduicheng Molybdenum Group Company Limited moved into North America by acquiring all the public shares of Yukon Zinc Corporation, after which Yukon Zinc was no longer publicly listed and is now a private company. There were two shareholders after the acquisition: Jinduicheng Molybdenum Group Co. Ltd., (JDC) and Northwest Nonferrous International Investment Co. Ltd.; both are sister companies to Shaanxi Non-ferrous Metals Holding Group Co. Ltd. In 2011 Yukon Zinc secured private placing financing via four

new shareholders: Fosun Gold Holdings Limited, Arich Investments Limited, Silvercorp Metals Incorporated, and Northern Mineral Investment Corporation.

**Can you update us on the production timeline at your Wolverine Mine project and also some of the key facts and figures of the mine?**

**CZ:** In March 2012, the Wolverine Mine reached commercial production of a mine achieving 60% of the designed capacity, 1,020 tpd; we plan to reach full capacity of 1,700 tpd by 2012 end or early 2013. Wolverine has a mine-life of nine years, and has five metals: three concentrates which are lead, zinc, and copper; the other two metals are silver and gold. There are still 691 sq km of claims in the adjacent area

to Wolverine Mine to be explored and developed.

**What is the future potential of your exploration projects at Yukon's Finlayson and Rancheria Districts?**

**CZ:** The current focus is achieving full capacity at Wolverine; our secondary focus will be developing the adjacent area to Wolverine to utilize the current infrastructure and extend the life of the mine.

**What have you found to be the key challenges and opportunities of working in Yukon?**

**CZ:** Yukon Zinc has found that people are reluctant to work in a remote area, but has overcome this challenge with its excellent human resource management strategy, compensation, and bonus package. As of October 31, 2012, there are 334 personnel employed at the mine-site, half of them are directly hired by Yukon Zinc, the remainder are contracted and sub-contracted. We continue to add personnel at mine-site in tandem with increased production.

**JYL:** A further challenge is sourcing adequate power for mining projects in Yukon and the cost of doing so as compared to other provinces, i.e. British Columbia.

**What percentage of your 334 staff is sourced locally and have you found an adequate pool of skilled labor in Yukon?**

**CZ:** As of October 31, 2012, 7.5% of our workforces are local Kaska First Nations, and 21.6% are Yukon residents. It is difficult to source skilled labor locally, but we have on-going training and regular contact with the First Nations, local and federal governments. We have outlined to the federal government the challenges of working in Yukon; they have acknowledged our concerns, assuring us of their support.

**What are you doing to ensure a light environmental footprint in your operations and what is your relationship with the local First Nations community?**

Mining Beyond Borders



**Yukon Zinc Corporation** - a mining, exploration and development company committed to operating safely and responsibly in the global business environment.

Currently the company is safely ramping up to full production at its zinc-silver Wolverine Mine in Yukon, Canada and focusing on strategic growth opportunities.

[www.yukonzinc.com](http://www.yukonzinc.com)



**CZ:** We are observing all the environmental codes; we received the Robert E. Leckie award twice from the Government of Yukon in 2011 and 2012 for demonstrating excellence in environmental stewardship and social responsibility. Yukon Zinc has an environmental team on site and at its Vancouver office who are constantly sampling, checking and reporting to ensure continued compliance of environmental regulations. We have a socio-economic participation agreement (SEPA) with Kaska First Nations and have involved ourselves with the local community with social work, economy, and employment at our mine-site.

**Looking forward, what is the vision for Yukon Zinc; and are you currently exploring any other projects within Canada?**

**CZ:** Our slogan is: 'Mining Beyond Borders'. We have a global view and will look at all base and precious metals exploration possibilities that compliment our business model, plus human and financial resources; we are open to a range of opportunities.

**Would expansion into other metals incorporate a joint venture or acquisition?**

**CZ:** Our plan is open: we carry out exploration and development ourselves, and are open to acquisition opportunities and flexible on partnerships.

**Is there a final message you have for the readers of Engineering & Mining Journal?**

**CZ:** China is a huge country, lacking natural resources and we see Chinese investors coming to North America to secure these. An illustration of Yukon Zinc's commitment is the Wolverine Mine project where we have achieved commercial production; Yukon Zinc would like to thank the mining fraternity for its support in achieving this. The company has a solid strategy and plan to enter the international capital market. •

"Working in remote locations and places that can see 80 degree temperature shifts between summer and winter are the biggest challenges of working in Yukon. You need operators and supervisors who understand what the weather does to equipment, and how to keep it functioning. Cobalt Construction is managing, but we certainly notice the labor shortages in the current climate; the average age of skilled workers is increasing, with many of our top operators the legacy of the vocational school that existed in Yukon in the 1970s. The skills shortage, though, is a global problem, rather than a regional one; it is hard to remain competitive with the wages being paid by sectors such as oil and gas."

**Shaun Rudolph, President, Cobalt Construction Inc.**

"The Klaza property is located in the Mt. Nansen district, a fairly well known placer gold mining district in Yukon, and there is a historical gold mine approximately 10 km to the east of this property. Although the Mt. Nansen area has seen extensive exploration over the past 50 years, the Klaza has seen only limited work... What many companies find a challenge in other jurisdictions, we view as positive. Rockhaven's work with the local First Nations community in Carmacks has been extremely positive. We know the importance of local hires and this year we project that 25% to 30% of our camp will be hired from Whitehorse or Carmacks. There are two deepwater ports close to the major highway route. Working with the government and locals who are generally very supportive of the mining industry is also quite positive."

**Matthew Turner, CEO, Rockhaven Resources Ltd.**

"Overland floated on the ASX in November 2006; we recognized that for the company to grow we needed to focus on an advanced stage projects and decided that zinc was the resource with the greatest price potential but there were no suitable projects in Australia. We widened our search globally and decided on the Selwyn Basin in Yukon, a highly prospective area, under-explored, and rich in base metals. We moved forward with the Andrew zinc project as it has excellent thickness and grade of mineralization. Our property in Yukon lies within the bounds of four First Nations groups; we respect their rights and have engaged with these groups, mainly with Kaska. We have employed from their community every year since we have had a field operation within their bounds, and do business with Kaska joint venture companies."

**Hugh Bresser, President & CEO, Overland Resources Ltd.**

"Many of Runge's technologies and services are directed at the major mining companies. Another service offering in the North is the provision of professional development courses, targeted at senior companies, junior exploration companies, personnel in regulatory bodies and community and aboriginal groups. Our main course is Mining for Non-Miners, specifically targeted at regulatory bodies and community groups. This course educates and increases knowledge of the mining industry. Our other courses include Mining Economics, and Truck and Shovel Mining Systems; our target audience here being mining industry professionals."

**Fraser Rowe, General Manager, Runge Mining (Canada)**

\*Since writing, Runge Mining have changed their name to RungePincocKMinarco





# The Northwest Territories: The Land of the Midnight Sun

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“Strongbow Exploration was formed in 2005 with the merger of two junior companies, one of which was Navigator Exploration Corp., who already had Nickel King in its portfolio. Nickel King came to the forefront in 2006 when commodity prices surged, particularly nickel; it made sense revisit the Nickel King property in late 2006... We are very comfortable working and exploring in northern Canada. The Northwest Territories covers a vast area and it remains a world class destination in terms of exploration potential. There is an ongoing dialogue between the mining industry and the Federal and Northwest Territories governments in an effort to streamline the regulatory process. The Northwest Territories needs mining diversification, and having an effective and responsible regulatory environment is critical to supporting this goal.”

*- Ken Armstrong, President and CEO,  
Strongbow Exploration Inc.*

# Beautiful Land

## NWT at a Glance

**Population:** 41,462 (2011)

**Capital:** Yellowknife

**Head of Government:** Premier Bob McLeod

**Gross Territory Product:** C\$4.791 billion (2010)

**GTP per Capita:** C\$100,128 (2010)

**Economic Sector Breakdown:** Mining, oil and gas, finance, construction

**Total area:** 1,346,106 km<sup>2</sup>

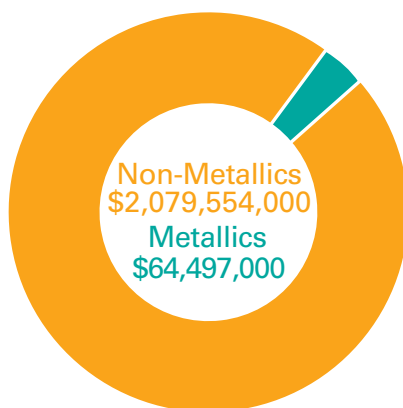
**Fraser Institute Ranking 2011/2012:** 48th

**Value of Mineral Production 2011:**

\$2,144,051,000

## Mineral Production in NWT by Type (2011)

Source: NATURAL RESOURCES CANADA



## Mining in traditional territories

In Inuktitut, one of the languages of the Inuit people native to northern Canada and one of the official languages of territory, the Northwest Territories are referred to as Nunatsiaq, or “Beautiful Land”. It is easy to see where the name comes from: stretching from southern forests up into the Arctic Circle, the Northwest Territories encompasses a spectacular variation of scenery.

This pristine environment is worth protecting, and the recognition of this has had both positive and negative effects on mining. There is little doubt that regulations in the Northwest Territories are somewhat stricter than neighbouring provinces and territories, as the government and community groups seek to distance themselves from the damaging Giant Mine era; now synonymous with environmental catastrophe. The negative perception caused by that time no doubt still plays a lingering role in the delays that the territory faces in resolving some long-running legal issues. Although still a home to a thriving industry, the territory currently faces a number of regulatory hurdles, which have, in part, led to a distinct drop in recent exploration activity.

Yet not all of this is a hindrance to the industry. In a prime example of how best practices can coincide with economic success, the Northwest Territories is home to the world’s first government-sponsored diamond certification program. As an ethical alternative to “blood diamonds”; this has helped the territory’s diamond industry maintain a place right at the heart of Canada’s diamond revolution: a decade that saw the country go from zero production in

1998 to the world’s third largest producer by value.

In the near future, however, the Northwest Territories must look beyond this glittering carbon. With key diamond mines expected to shut down over the next decade, and mining majors BHP Billiton and Rio Tinto’s future diamond interests unclear, the government of the Northwest Territories is trying to diversify its mining activity from the diamonds that helped create the world standard. Added to this incentive is the plummeting price of uncut diamonds, and the plethora of alternatives: the territory hosts nickel, rare earths, zinc and tungsten beneath its beautiful lands.

The Northwest Territories cannot afford to simply allow its mining industry to decline. Minerals and their extraction form the backbone of the economy. Creating more than 2,600 direct jobs, it has an annual economic impact of over \$750 million. With a potential six mines poised to come online in the foreseeable future, a mineral development strategy is currently being pushed through to move the territory into the future.

Facing the same labor shortage as the rest of Canada, the government of the Northwest Territories is also trying to develop a skilled workforce in partnership with local First Nation governments. “As land claims are settled and self-government agreements implemented, First Nation governments are taking on greater responsibility. The federal government has also implemented new programs and initiatives towards the development of the Northwest Territories labor market. Industry, employers, education systems, training providers and communities all have a role to play: we all must work together,” said Hon. Bob McLeod, Premier of the Northwest Territories government. •

# Interview with Honorable Bob McLeod

PREMIER, GOVERNMENT OF THE NORTHWEST TERRITORIES



**How is the government of the NWT working to engage both the neighbouring territories of Nunavut and Yukon, as well as the federal government, to tackle infrastructure issues present in the North?**

We work with our territorial partners every day. Given our similar geography, location and constitutional status, it is imperative that we work closely together. In addition to meeting once formally we meet several other times throughout the year and our officials are working together regularly on any number of issues.

With respect to infrastructure specifically, there are many similarities among all three territories. Our infrastructure programs must be flexible in order to accommodate the unique nature of the North.

The transportation and communication needs in the North are unique in that an underdeveloped system is serving a large landmass where many of our communities are not yet connected to the all-weather highway system. The North also faces the realities of short construction seasons, unique design considerations due to climate, and climate change impacts.

A strong relationship with the federal government is key to addressing these infrastructure issues. The federal government still retains responsibility and authority for new roads in the Northwest Territories and plays a very important role in infrastructure development both here and across the country. Therefore our relationship with the federal government is very important to us and we work hard at it, both individually and pan-territorially.

Many of the NWT's priorities are very similar to those of the federal government, as outlined in Canada's Northern Strategy and the infrastructure plans that Canada has established. Investing

in the North is the cornerstone of Canada's agenda and long-term investments in Northern infrastructure will bolster economic and resource development opportunities for the NWT and Canada.

**How is the Northwest Territories government ensuring that Aboriginal continue to be involved in the meaningful discussion, engagement, and current issues facing the mining industry?**

Our government is taking steps to strengthen and renew our partnerships with Aboriginal governments. Since being elected last October, we have been doing business in a new way, finding new approaches to working together with Aboriginal governments on behalf of all residents.

Part of this new approach includes a commitment to meet with leaders from all Aboriginal governments bilaterally. Since October, I have met with Aboriginal governments and community leaders on over 30 separate occasions in all regions of the Territory. The discussions at these early meetings focused on identifying areas of common ground between our governments and discussing ways we can work together.

As we work to settle land claims across the territory we are also creating certainty for both the Aboriginal Governments and industry. Clear guidelines assist all the players in ensuring and attaining meaningful engagement.

**What role do you believe the federal government should play in helping to develop the NWT mining industry?**

The NWT has the potential to fuel nation building projects that will have profound impacts, north and south of 60, today and for generations to come. We cannot do it alone. Federal support is essential to turn this promise into a reality, particularly as it relates to infrastructure development.

Access to the NWT's wealth of resources is currently restricted by the NWT's transportation and communications limitations. The federal government's role and authority is particularly important when it comes to new road development in the Northwest Territories. The development of new roads and communications infrastructure is key to resource development. We must work with the federal government to construct key infrastructure essential to diversify our economy and improve the quality of life of our residents.

**Is there a final message you would like to leave with our readers?**

We are on the cusp of unprecedented economic and social development that will generate benefits for Northerners and all Canadians. We have made it a priority to reach out to people across our territory, our governments and across sectors. We recognize the key to unleashing our territory's tremendous potential lies in the power of partnerships and we are working hard at building these.

We are working with our industry and government partners to improve our regulatory regime to facilitate investment that will generate jobs and responsible economic growth, while ensuring environmental stewardship remains paramount. And we are investing in education and skills development to unlock the power and potential of our people - our greatest strength.

This is an exciting time for the Northwest Territories and we work to reach our potential and build a positive future for all the people who call the NWT home. •

# Interview with Honorable J. Michael Miltenberger

MINISTER OF ENVIRONMENT AND NATURAL RESOURCES, MINISTER RESPONSIBLE FOR THE NORTHWEST TERRITORIES POWER CORPORATION, GOVERNMENT OF THE NORTHWEST TERRITORIES

**Is there a time-line in place for devolution? What initiatives in the NWT's mining industry will be implemented from the devolution agreement?**

Devolution will be in place by the end of 2012. One of the first initiatives is to deal with the access to energy issues that mining companies currently experience; arguably a solution would be the enormous hydro potential of the NWT. Diamond mine operators, for example, cite as a major concern the enormous cost of shipping diesel fuel to run their generators and equipment. Diavik Diamond Mine is installing wind power with four large wind generators costing approximately \$24 million; this will pay for itself within five years. The NWT's goal is to produce more reasonably priced energy. Devolu-

tion will enable us to conduct the mining application process and regulatory business in a more timely and clear-cut way.

**Have projects been delayed in the NWT due to the lack of energy resource?**

Some projects have been delayed due to the lack of energy resource. Avalon Rare Metals Incorporated have two projects at the Nechalacho project at Thor Lake, one for extracting resources the other for processing; both requiring energy. If this can be carried out with hydro it is economically viable; if the hydro is too expensive or they have to revert to diesel it is unfeasible. Further project examples are Devonian Metals Incorporated lead-zinc project at Wrigley where budgeting for shipping in diesel would

change their economic bottom line dramatically. At the Fortune Minerals NICO deposit it is doubtful whether this will be developed without hydro energy; diesel reliance for power supply would make the project too expensive.

Initially we considered running a transmission line north from Taltson dam to the diamond mines of the NWT with an estimated project cost of \$1 billion; three-quarters of which would have fallen to the diamond mine companies. This would add 59 MW to available power. We are also determining the costs, implications, and challenges of a transmission line joining the Snare and Taltson power grids together; a project that will cost \$750 million, but it is finding the partners and resources to execute the project. •

# Interview with Honorable David Ramsay

MINISTER OF INDUSTRY, TOURISM AND INVESTMENT, AND MINISTER OF TRANSPORTATION, GOVERNMENT OF THE NORTHWEST TERRITORIES

**Can you give more details on the government's new mandate on Mackenzie Valley gas project, and how will the project impact the mining industry in the NWT?**

We are very supportive of the Mackenzie Valley gas project; this project is very important to the NWT and at every opportunity I have talked with the proponents of the project. I recently announced at the Inuvik Petroleum Show the re-naming of our Mackenzie Valley pipeline office to Mackenzie Valley Petroleum Planning Office; the work will be re-profiled to accommodate the demand for assistance in areas such as Sahtu. The pipeline project enables us to transfer some of the NWT's focus to an area not previously highlighted. Mining will benefit from the spin-off of the development of the infrastructure for the gas project; the NWT will continue to pursue a strong mineral development strategy.

**What motivated the NWT government's cessation of the Communities and Di-**

**monds report, and will we see this replaced with something similar?**

When developing the NWT resources, the NWT government's stance is that there has to be benefits to the local communities. We have achieved success and foresee considerable mileage with our Socio-Economic Agreements (SEA) undertaken with proponents of large-scale resource projects. Currently, we have five: one with Mackenzie Valley Pipeline, one with Prairie Creek, and three with diamond mines. A future SEA could be developed with Gaucho Kue. The SEA is separate to the confidential Impact Benefit Agreements between Aboriginal groups and project proponents.

**What initiatives does the NWT government have to address the infrastructure challenges of the NWT?**

The vast geography of the NWT does not have the transportation infrastructure that the southern jurisdictions have. It is an area of great concern to us and the federal gov-

ernment who recently pledged \$150 million to the Tuktoyaktuk to Inuvik section of the Mackenzie Valley Highway, a portion of the highway of which we are in construction partnership with the federal government. Our construction schedule has been delayed by the environmental assessment; we are hoping to commence construction winter 2012. With the advancement of resource development in the central Mackenzie and the number of large companies involved, we will see the progression of the Mackenzie Valley Highway all-weather road infrastructure imminently in the central Mackenzie. Meetings are being held with the companies involved in the central Mackenzie to discuss a plan to advance all-weather roads in the Sahtu. The Department of Transportation is also looking at extending the seasonal road from north of Yellowknife into the Slave Geological Province; an important area for the development of further mines as we need to diversify our mining portfolio. •

# Rules and Regulations

## An overview of the regulatory framework in the Northwest Territories

One critical area of concern in the Northwest Territories is the regulatory framework governing mining and exploration activities. When Yukon took control of its mineral industry from the federal government in 2003 it started a decade-long transformation of the territory from a mineral backwater to one of the most welcoming and exciting exploration destinations in the mining world. Yet the Northwest Territories are still working on achieving this devolution, and as a result its industry is being held back: while Yukon is now ranked in the top 10 of favourable mining destinations in the Fraser Institutes Annual Survey of Mining Companies, the Northwest Territories languish in the middle of the rankings, one behind Bulgaria.

“The main issue is that most of the regulatory authorities established in the Northwest Territories were set up with agreements with the First Nations and their land claims. There was some compromising on the regulatory environment and as a result we have a plethora of bodies that make it difficult to get through the system for smaller companies,” said Neil McCrank, Q.C. counsel of law firm Borden Ladner Gervais LLP. “Neither Nunavut nor the Northwest Territories have devolution, although they are working towards it, and it will make quite a difference on the assumption that the territorial government can take over that responsibility. The federal government has been reluctant to move until it can be sure there is a provincial government that will provide enough bases for it to occur in a healthy way.”

Currently, the targeted date for Northwest Territories’ devolution is January 2014, and if this goes ahead as planned

the government must seize the opportunity to improve its regulatory efficiency. “A current focus is on the regulatory environment, as it is critical to have a certain type of, and efficient regulatory system in place if you want to attract investment and maintain a healthy industry,” said Tom Hoefer, executive director at the Northwest Territories and Nunavut Chamber of Mines.

Yet devolution is not a magical solve-all: the government must, and is, working to improve the regulatory environment in other ways. “We are working with our industry and government partners to improve our regulatory regime to facilitate investment that will generate jobs and responsible economic growth, while ensuring environmental stewardship remains paramount,” said Premier McLeod. “Going forward there will be some challenges with the proposed regulatory reform; not all the aboriginal governments are supportive of the reforms. These reforms will enable us to improve both the timing and thoroughness of the process, and not jeopardize the balance between the environment and resource development. We are encouraging and anticipating development in the Northwest Territories.”

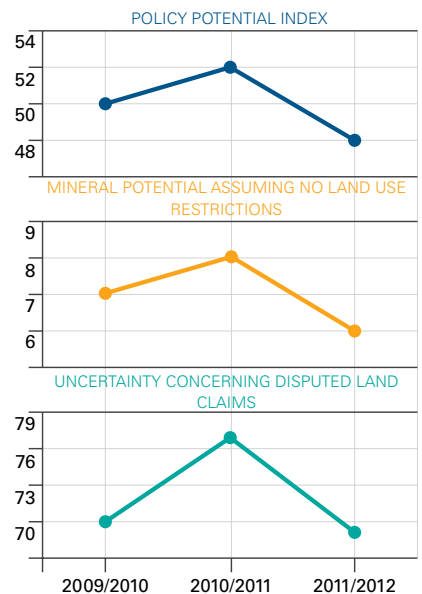
Furthermore, some problems are born out of a conflict between the long-term need to develop the local workforce and the short-term need to obtain skilled workers: something that will not be solved by simply giving the territorial government more control. “The most interesting challenge over the last 20 years has been the permitting process and within the last five to seven years, it has become much more difficult... Hiring can also be a problem in the small northern communities. There often is not a lot of capacity to do work.

This becomes a real problem when you commit to hiring locals and the skills are simply not there,” said Gary Vivian, president, Aurora Geosciences Ltd.

Whatever the current difficulties, however, the future looks bright. “All mining companies are aware of the rules in the Northwest Territories that they negotiate Impact Benefit Agreements with the aboriginal governments in tandem with Socio-Economic Agreements, ensuring that we all benefit from the development... Devolution, energy, and regulatory reform are underway, and we guarantee that looking forward things will improve as a result of these three factors,” said Hon. Michael Miltenberger, Minister of Environment and Natural Resources, government of the Northwest Territories. •

### NWT’s Fraser Institute Ranking

Source: Fraser Institute



# Interview with Christine Kowbel

PARTNER, LAWSON LUNDELL LLP

The North is rich in human and natural resources, but at Lawson Lundell we understand it is not always an easy place to do business. The northern regulatory landscape is complex. Settled and pending land claim agreements of Inuit, Métis and other Aboriginal groups must be respected and understood. These factors together with the heightened importance of logistical planning mean proponents require timely, cost effective and practical legal advice. Our full service northern legal team has the knowledge and the deep commitment necessary to help our clients achieve success in the North.

On the project development side, the firm has a distinctive northern focus and in 2011-12 was involved in the development or operation of twelve mines in the Canadian North including gold, silver, diamond, zinc, copper and iron ore mines.

Examples of our significant major project experience include representing ArcelorMittal in respect of its \$4 billion Baffinland Mary River Iron Ore project and Newmont Mining Corporation in respect of its Doris North and Phase 2 Hope Bay Belt Projects (all located in Nunavut), Rio Tinto plc's Diavik Diamond Mine (located in the Northwest Territories), and Capstone Mining's Minto Mine (located in Yukon).

Identifying potential legal risks and implementing mitigating strategies at the early stages of project planning is often the key to project success. Early identification of legal requirements will minimize delays and risks. Before financing and constructing projects, proponents will seek assurances that the project approvals are valid and that they will withstand any potential challenges. Many projects have faced risks of delay resulting from Court applications by environmental, aboriginal, or community groups seeking to set aside approvals on the grounds that legal requirements and processes have not been followed. We work with our clients to identify and manage those risks.

We monitor the progress of resource projects as they proceed through the environmental assessment and regulatory stages to ensure that "lessons learned" can be applied. In general, the major reasons for projects to be rejected relate to impacts on water quality or fish habitat (for example, using natural lakes for tailings impoundment), failure to address aboriginal rights and interests, and the risk of long-term treatment of runoff from waste rock or tailings (a "walk away" closure plan from a financially capable and responsible proponent is most likely to meet regulatory approval). •

"While some people are chiefly concerned with changing Arctic conditions; receding permafrost for example; those are things you adapt to, you learn to live with and manage. The greater problem that I see is the regulatory environment that the governments prescribe. Combining this difficult regulatory environment with the challenge of raising money in the current markets, it is very easy for companies to shift their interest to another part of the globe."

**Glen Wonders, General Manager, Mining, Allnorth Consultants Ltd.**

"Before complete regulatory certainty and a positive investment environment can be achieved in the territories, land claims must be settled; then rationalization of the legislative framework that is imposed on the mining industry should follow, whilst ensuring institutions are not created that cannot respond to mining's need in a timely fashion. There will be a one clear land claim based regulatory system in Nunavut when the proposed Nunavut Planning and Project Assessment Act is approved. Nunavut has a simpler situation to the Northwest Territories; it has one territorial government and an Inuit people with a common language and culture. In the Northwest Territories devolution now targeted for January 2014 may present an opportunity to improve the efficiency of its regulatory system."

**John Donihee, Barrister and Solicitor; McLennan Ross LLP**

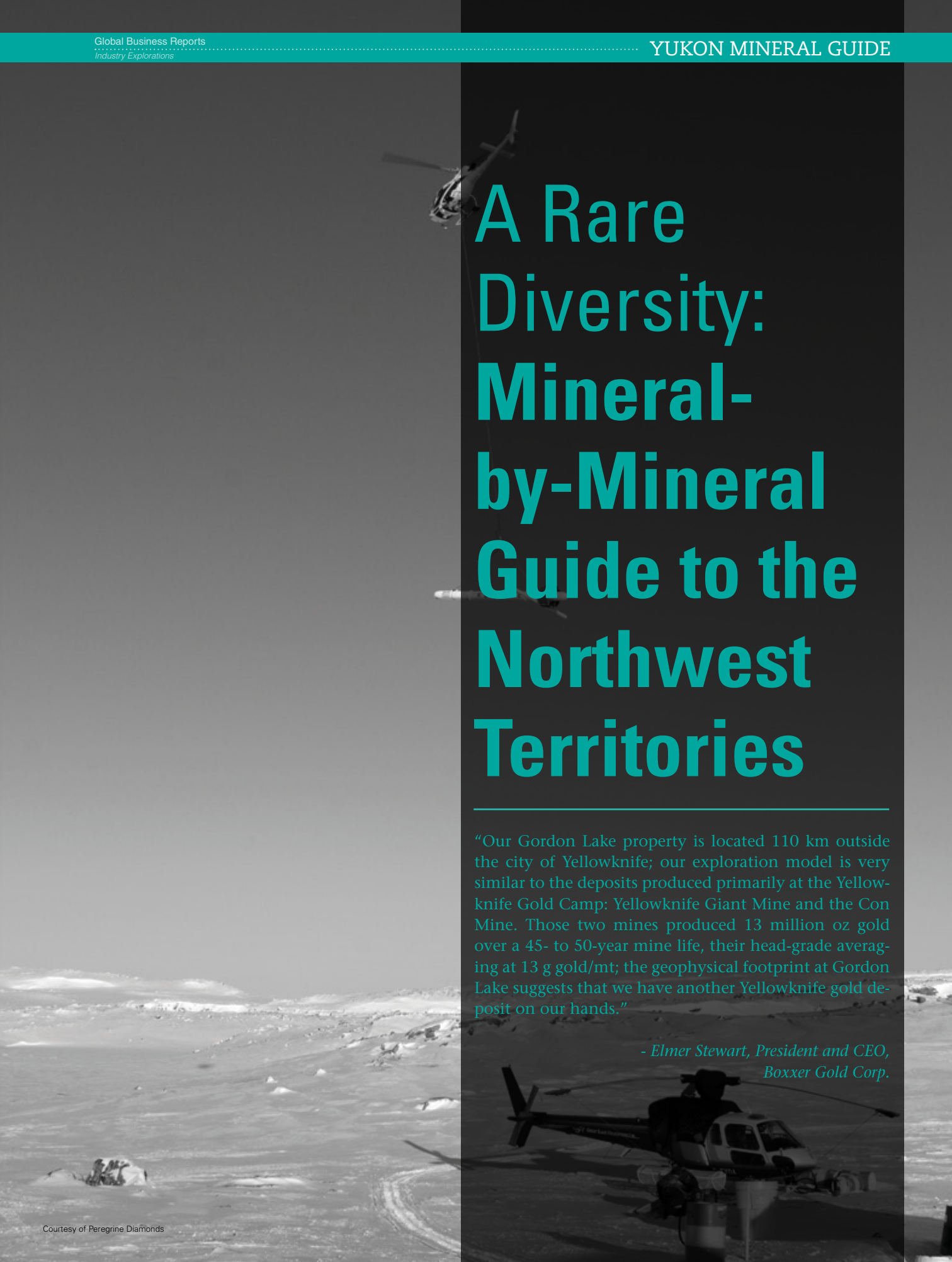
"The regulatory systems ought to be restructured in the Northwest Territories, Nunavut and the Yukon. The main issue is that most of the regulatory authorities established in the Northwest Territories were set up with agreements with the aboriginals and their land claims and there was some compromising on the regulatory environment and as a result we have a plethora of bodies that make it difficult to get through the system for smaller companies. Yukon has had devolution for some time, which is why they have been able to move ahead with their development. Neither Nunavut nor the Northwest Territories have devolution although they are working towards it, and it will make quite a difference on the assumption that the territorial government can take over that responsibility. The federal government has been reluctant to move it there until it can be sure there is a provincial government that will provide enough base for it to occur in a healthy way."

**Neil McCrank, Counsel, Borden Ladner Gervais LLP**

"The Northwest Territories specifically had a number of water boards, for which the federal government has announced it is going to create one regulatory scheme. This will be a big improvement because it will provide more continuity and more transparency; there will be less variance between the different water boards, so the process will be easier to understand. Yukon has one assessment process, which is fairly seamless; in contrast, British Columbia has both federal and provincial assessment processes, which make it more complicated. While there is a great deal of activity currently in Nunavut, operating there is extremely expensive. You have a very short exploration and development window, maybe three months if you are lucky, so everything has to be done far in advance, basically a year before. It is very difficult for smaller companies to operate in Nunavut, as a simple exploration program will run into the millions of dollars."

**Brian Abraham, Partner, Fraser Milner Casgrain LLP**

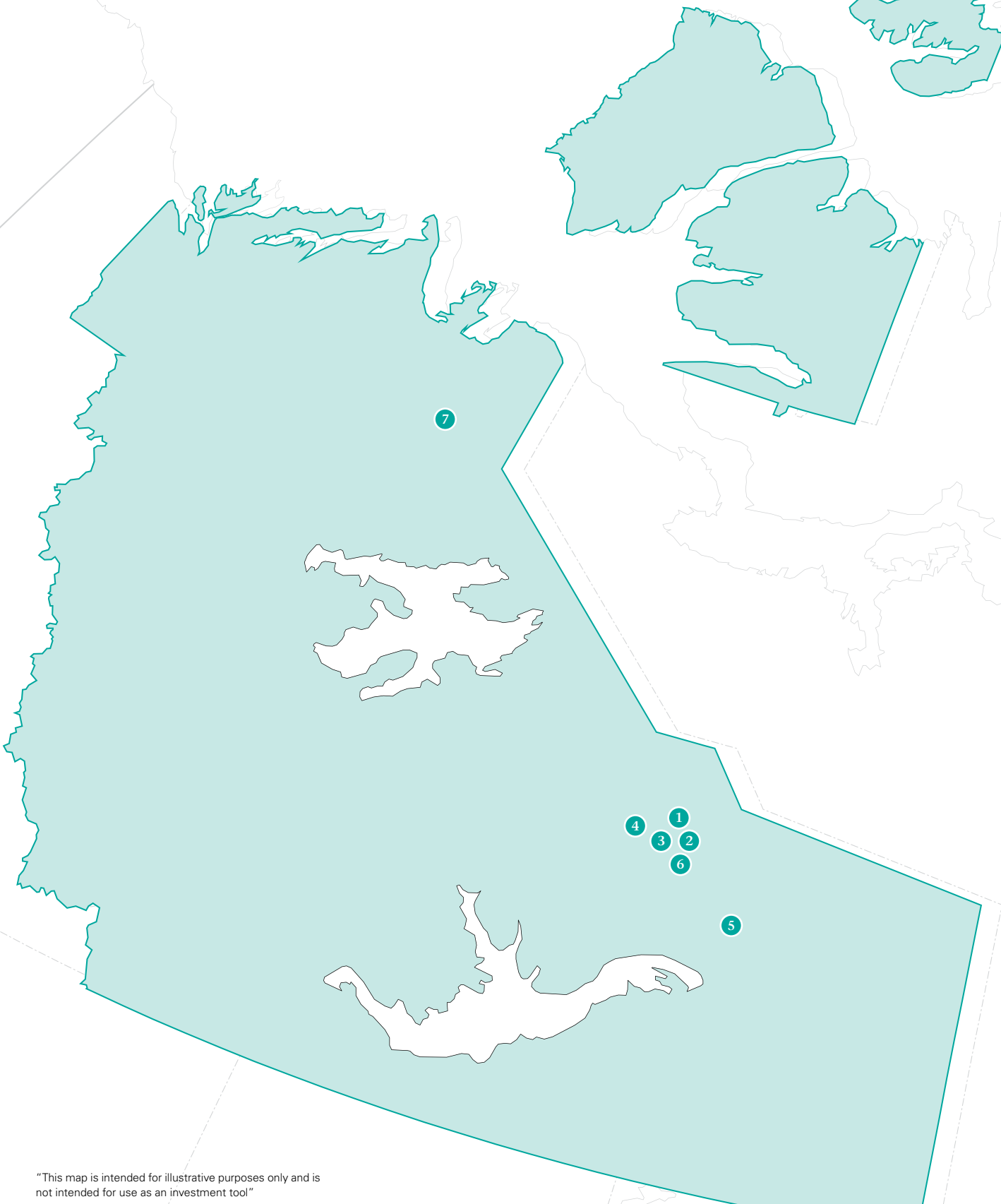




# A Rare Diversity: Mineral- by-Mineral Guide to the Northwest Territories

“Our Gordon Lake property is located 110 km outside the city of Yellowknife; our exploration model is very similar to the deposits produced primarily at the Yellowknife Gold Camp: Yellowknife Giant Mine and the Con Mine. Those two mines produced 13 million oz gold over a 45- to 50-year mine life, their head-grade averaging at 13 g gold/mt; the geophysical footprint at Gordon Lake suggests that we have another Yellowknife gold deposit on our hands.”

*- Elmer Stewart, President and CEO,  
Boxxer Gold Corp.*



"This map is intended for illustrative purposes only and is not intended for use as an investment tool"

1

COMPANY  
**BHP Billiton**  
PROJECT NAME  
**EKATI**  
MINERAL TYPE  
**Diamonds**  
PROJECT TYPE  
**Mine**  
PRODUCTION (2011)  
**2.58 million carats of diamonds recovered**

2

COMPANY  
**De Beers**  
PROJECT NAME  
**Snap Lake**  
MINERAL TYPE  
**Diamonds**  
PROJECT TYPE  
**Mine**  
PRODUCTION  
**926,000 carats of diamonds recovered**

3

COMPANY  
**Diavik Diamond Mines Inc.**  
PROJECT NAME  
**Diavik**  
MINERAL TYPE  
**Diamonds**  
PROJECT TYPE  
**Mine**  
PRODUCTION  
**6.7 million carats of diamonds recovered**

4

COMPANY  
**GGL RESOURCES CORP. (TSX-V: GGL)**  
PROJECT NAME  
**CH PROJECT**  
MINERAL TYPE  
**DIAMONDS**  
PROJECT TYPE  
**EXPLORATION**

5

COMPANY  
**MOUNTAIN PROVINCE DIAMOND (TSX: MPV) & DE BEERS**  
PROJECT NAME  
**GAHCHO KUÉ**  
MINERAL TYPE  
**DIAMONDS**  
PROJECT TYPE  
**EXPLORATION**  
PROBABLE RESERVES  
**31.3 MILLION MT @ 49 MILLION CARATS**

6

COMPANY  
**PEREGRINE DIAMONDS LTD. (TSX: PGD)**  
PROJECT NAME  
**LAC DE GRAS**  
MINERAL TYPE  
**DIAMONDS**  
PROJECT TYPE  
**EXPLORATION**  
INDICATED RESERVES  
**19.5 MILLION MT @ 18.2 MILLION CARATS**

7

COMPANY  
**TALMORA DIAMOND INC.**  
PROJECT NAME  
**HORTON RIVER**  
MINERAL TYPE  
**DIAMONDS**  
PROJECT TYPE  
**EXPLORATION**

# Diamonds

The modern mining industry in the Northwest Territories is heavily based on diamonds. The future of this industry in the Northwest Territories, however, remains unclear. In its wake though, unique environmental innovations and local engagement have still made it a territory to look to as an inspiration in many respects. Currently, the territory hosts three operating diamond mines, including international mining house De Beers' Snap Lake mine, with the Gaucho Kue soon to come online.

Rio Tinto's Diavik Diamond's mine and BHP Billiton's Ekati diamond mine combine to help rank Canada as the world's third largest diamond producer. Rio Tinto and BHP have indicated they may be interested in selling off their diamond assets to focus on commodities more core to the companies, adding a degree of uncertainty to the industry.

"Rio Tinto's recent announcement of a strategic review in no way reflects its lack of confidence in the diamond market; the reality is, diamonds are just one part of its large portfolio of resource assets," said Niels Kristensen, president and COO, Diavik Diamond Mines.

Rio Tinto's Diavik Diamond Mines has been a unique northern innovation in many ways. Located in the middle of a lake, the diamond pipes are located in deep water, making this an expensive and complicated project. Now entering the underground mining stage, they have transitioned from the original open pit operations. "In April 2012 the first 1 million mt ore at the underground operation was achieved; the next 1 million mt will be realized within six months. For the next few years the bulk of operation will be underground. The fourth kimberlite diamond pipe is currently undeveloped, accessible via open pit mining," said Kristensen.

Bringing unique innovation to the North, Diavik has now introduced wind technology at its site, a first in Canada's North. "Historically, to supply the mine with energy we have hauled 60 million to 80

million liters of diesel annually via the ice road over a six-week period, a very costly and environmentally unfriendly exercise. Diavik has approval from Rio Tinto for \$30 million to install four wind towers each extending to over 100 meters high generating 9.2 megawatts at peak, which will satisfy around 10% of our site energy requirements. The four turbines are now operational and supplying power to Diavik. This source of energy for a mining operation is unique; the units are designed to generate at -40 C o."

DeBeers has now developed two diamond mines in northern Canada; Snap Lake in the Northwest Territories and Victor in Ontario, and are at the permitting stage for a third mine; Gacho Kue in the Northwest Territories.

The construction of Snap Lake helps outline northern challenges with a combination of local and southern solutions; "The logistics were the key challenge of the [Snap Lake] project. There was a window of only 100 days to transport in a year's worth of supplies via an ice road, coordinating with three other mines for space on the road. What fails to be delivered has to be flown in. The second year was very challenging; we had the shortest ice-road on record of six-weeks duration.

To compensate AMEC worked with the other companies in the area and between us commissioned Hercules airplanes to fly in equipment during the summer," said Duane Gingrich, vice president, projects and operations, mining and metals, AMEC Plc.

These operations continue to draw southern companies, ready to support the industry. "Rescan Environmental Services began working in the Northwest Territories in the 1980s, working on projects for BHP Billiton and eventually took on the Ekati diamond mine project in 1992, carrying out the first licensing and permitting of a diamond mine in Canada; our relationship with Ekati is still ongoing," said Clem Pelletier, CEO, Rescan Environmental Services Ltd.

Diamonds will remain a key driver of the Northwest Territories mining industry for the foreseeable future, but other commodities are starting to also gain attention in the territory and abroad. •

# Interview with Niels Kristensen

PRESIDENT AND CHIEF OPERATING OFFICER, DIAVIK DIAMOND MINES INC.

## Can you give a brief overview Diavik Diamond Mine and its key milestones in NWT?

The ten-year successful presence of Diavik in the Northwest Territories (NWT) should be attributed to the people who originally set up the operation. An outstanding contribution has been the partnership with the host community along with our objective to develop and extract the resource for the benefit of the people of the NWT. A further contribution to the success of Diavik has been our total commitment to environmental responsibility, minimizing impact on the environment. The unique characteristic of Diavik is its location in the middle of a lake; the diamond pipes are located in what was deep water, this made the project very expensive and a big investment for Rio Tinto and its partners. The water treatment facility that we have is state-of-the-art; all the water that leaves the site is of drinking-water quality.

## Can you introduce us to Diavik and elaborate on the transition from open pit to fully underground mine as well as the plan for the fourth kimberlite diamond pipe?

There are 1,100 people currently working at Diavik. The mine has met production expectations, but its operating costs are higher than was originally expected. We commenced our first underground mining at Diavik in 2010 running in parallel with our already operational open pit; as of September 2012 we are a fully underground operation. In April 2012 the first 1 million mt ore at the underground operation was achieved; the next 1 million mt will be realized within six months. For the next few years the operation will be fully underground. The fourth kimberlite diamond pipe is currently undeveloped. It is an integral part of Diavik's plans, but its development is not imminent.

## Is Rio Tinto's diversion of interest from diamond mining a long or short-term strategy?

The future of the diamond market looks very strong with demand exceeding supply; Diavik is perfectly placed to supply some of that shortfall. Rio Tinto's recent announcement of a strategic review in no way reflects its lack of confidence in the diamond market; the reality is, diamonds is just one part of its large portfolio of resource assets.

## Can you outline some of the key environmental initiatives of Diavik Mines, including your new wind technology initiatives?

Rio Tinto is focused on reducing the impact of climate change and energy efficiency for all its business units globally. Diavik was recognized as a suitable location for wind power technology; a weather tower was set up to collect data through which the wind resource was proven. Historically, to supply the mine with energy we have hauled 60 million to 80 million liters of diesel annually via the ice road over a six-week period, a very costly and environmentally unfriendly exercise. Diavik has approval from Rio Tinto for \$30 million to install four wind towers each extending to over 100 meters high generating 9.2 megawatts at peak, which will satisfy around 10% of our site energy requirements. The four turbines are now operational and supplying power to Diavik. This source of energy for a mine development is unique; the units are designed to generate at -40 degrees. Globally, it is the biggest wind-diesel system. This concept can be extended to elsewhere in the NWT, not just mines, i.e. remote communities. Diavik has donated its weather tower to the Det'on Cho Corporation; this tower has been installed at the Giant Mine to study the wind resource and hopefully will be able to eventually assist with the remediation program.

Water management is critical for everyone. We have invested in a state-of-the-art water treatment facility at Diavik, which has recently been expanded; a substantial proportion of our water is recycled. We

have on-going environmental monitoring involving our community partners who historically have a better understanding than us of the land; Diavik maintains a close watch on its environmental impact and is always seeking to minimize it impact.

## What are some of your initiatives that you have taken as a commitment to the North and local communities?

The resources of the NWT belong to the people of the NWT. Investment is needed to develop those resources, but it is essential that the local community benefits from the resources. Diavik has a policy to ensure these benefits are distributed amongst the local communities by focusing on employment, skills training, business opportunities, plus other initiatives including sponsorship. Our employment priority group is a minimum 160 Aboriginals; currently, we have approximately 250. 55% of our workforce is Northern based. Currently, Diavik has 36 active apprentices, all are Northern, 21 are Aboriginal. Over the next decade our commitment is to train and certify 100 journeypersons. We have a successful partnership with the Mine Training Society, especially developing underground skills. We were instrumental in establishing the Aboriginal Leadership program, which has been taken over by Aurora College and called the Northern Leadership Development program. Since commencing operations at Diavik, \$3.2 billion has been invested into the Northern economy via business placed with Northern companies, \$2 billion of this has been with Aboriginal-owned or Aboriginal-joint ventured companies; our target spend of 70% with Northern companies has been achieved. An Aboriginal success story is Bouwa Whee Catering, a 100% Aboriginal-owned Det'on Cho Corporation company, who offer a full world-class catering service to Diavik mine. Tli-cho Logistics is another example of a very successful Aboriginal company that has had a strong association with Diavik. •

# Interview with Brooke Clements

PRESIDENT, PEREGRINE DIAMONDS LTD.

**Peregrine Diamonds is now on its sixth anniversary of being a publicly listed company, could you tell us about some of the key milestones in this period?**

Peregrine Diamonds Ltd. was originally founded as a private company by CEO Eric Freidland in 2003. After approximately three years of privately raising capital, the company went public in January, 2006 with a focus on diamond exploration and development. The company has made a number of diamond discoveries since 2006. The first major milestone for the company was the definition of a diamond resource in the NWT (18.2 million carats in the DO-27 kimberlite). This deposit is just 27 km southeast of the Diavik diamond mine and a valuable resource waiting to be developed. This work was completed between 2006 and 2008.

In 2007, Peregrine discovered the Nanuq diamond district in Nunavut, 300 kilometres north of Rankin Inlet. At Nanuq, we drilled three targets and found three diamondiferous kimberlites in the first drill program. In 2008 we made a spectacular diamond discovery at Chidliak on South Baffin Island, Nunavut, just 120 kilometres from Iqaluit, the capital of Nunavut. Since then we have found 61 kimberlites at Chidliak and seven pipes have economic potential. Peregrine Diamonds is currently advancing this project towards development.

On September 5, 2012, Peregrine announced it had completed an option deal with DeBeers. Under the terms of the agreement De Beers has the exclusive right, until December 31, 2013, to enter into an earn-in and joint venture agreement with Peregrine on a 50.1% De Beers / 49.9% Peregrine ownership basis. If a joint venture is formed, De Beers will undertake mineral exploration and development work potentially leading to the completion of a bankable feasibility study and, if warranted, the construction of a diamond mine. As consideration for the option, DeBeers completed a \$2.5

million private placement in Peregrine and will be responsible for making a \$2.5 million project payment due on January 31, 2013. We are pleased to be associated with DeBeers, the world's leading diamond mining company and believe that their northern Canadian mining, development and exploration experience will add great value to Chidliak. DeBeers has developed two diamond mines in northern Canada, Snap Lake in the NWT and Victor in Ontario, and are at the permitting stage for a third mine, Gacho Kue in the NWT.

**Nunavut has a general lack of infrastructure, which have proved challenging for some interviewees to advance their projects. Have you found infrastructure to be a concern in your operations?**

Nunavut certainly lacks infrastructure; however, we are fortunate as our project is 120 km from Iqaluit, the capital of Nunavut, where supplies can be transported by boat. However, because there is no road to our project we still have to mobilize everything by air or by driving special vehicles over the snow. The more remote a project is in Nunavut, the more challenging shipping, transportation, and access to project sites can be. Recognizing the importance of ease of supply for these projects the government of Nunavut is working towards improving their port system. Another infrastructure challenge is power; large diesel plants need to be built to power mines. Diesel generators are the sole power source for the city of Iqaluit. An important initiative in the Iqaluit area is to establish hydroelectric power

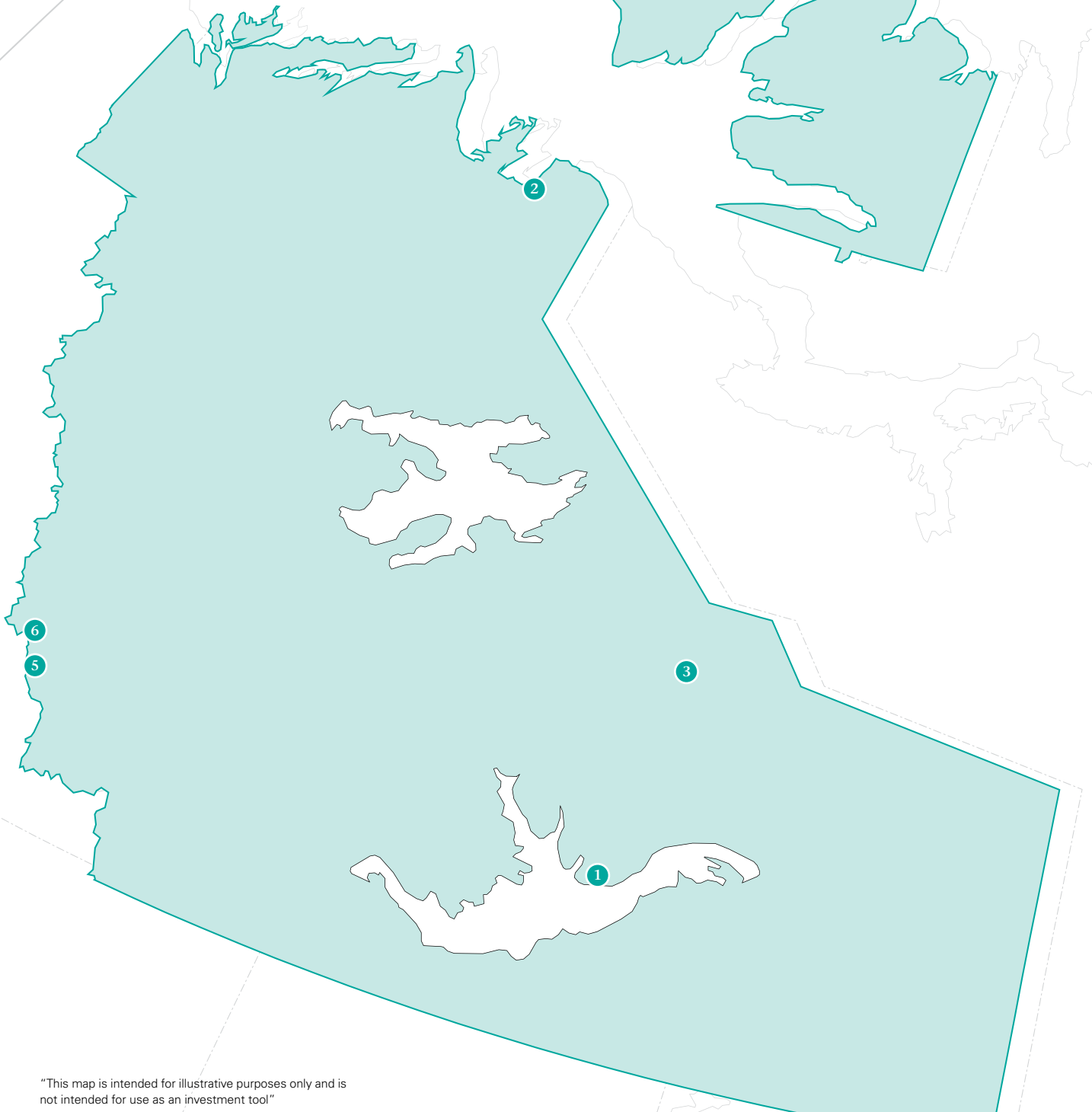
**What is the business strategy of Peregrine Diamonds for the Chidliak deposit? Do you plan to take it into production yourself?**

As illustrated by our recent option deal with DeBeers, we have always considered partnerships and joint ventures.. As

a junior company, we have always conducted our affairs as though we are going to develop it ourselves. While advancing the project, we have been conducting environmental baseline studies and worked hard at establishing good government and community relations. A top priority on all our projects is the health and safety of our workers and being a good steward of the environment. We are determined to control as much of the rough diamond production as possible from Chidliak when it becomes a mine. This will give Peregrine a number of business options such as downstream retail profits.

**What are some of the corporate social initiatives of Peregrine Diamonds Ltd. in Nunavut?**

Peregrine Diamonds is very proud of our record as a good corporate citizen in Nunavut. Prior to determining we had economic potential at Chidliak, we started an environmental baseline study and we have continued the studies every year since. We have also made great effort to hire and train local workers even though our project is at a relatively early stage. We want to begin the process of building a good local workforce in preparation for the project moving to the development and mining stage where we will need significant labor. Our workers become our ambassadors in the community, informing people about how the project is being operated. We work hard to keep residents of the two nearest communities, Iqaluit and Pangnirtung, about the project. We canvas elders about their knowledge of the area to be aware and sensitive to any archeological sites and areas that are currently used. We also conduct tours of our projects for the locals to help them get familiar with what we are doing. Working towards good community relations is not only the responsible thing to do as a company operating near the communities, but also it is important from a business perspective. •



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**1** COMPANY  
**Avalon Rare Metals Inc. (TSX: AVL)**  
PROJECT NAME  
**Nechalacho**  
MINERAL TYPE  
**REE**  
PROJECT TYPE  
**Exploration**  
NI 43-101 INFERRED RESOURCE  
**223.24 million mt @ 1.31% TREO & 0.19% HREO**  
NI 43-101 INDICATED RESOURCE  
**88.46 million mt @ 1.53% TREO & 0.27% HREO**

**2** COMPANY  
**Damley Bay Resources Ltd. (TSX-V: DBL)**  
PROJECT NAME  
**Damley Bay**  
MINERAL TYPE  
**Nickel**  
PROJECT TYPE  
**Exploration**

**3** COMPANY  
**GGL Resources Corp. (TSX-V: GGL)**  
PROJECT NAME  
**Providence Greenstone Belt**  
MINERAL TYPE  
**Nickel**  
PROJECT TYPE  
**Exploration**

**4** COMPANY  
**KALGOORLIE MINING CORP (ASX: KMC)**  
PROJECT NAME  
**SNOWBIRD**  
MINERAL TYPE  
**NICKEL**  
PROJECT TYPE  
**EXPLORATION**

**5** COMPANY  
**NORTH AMERICANTUNGSTEN CORPORATION LTD. (TSX-V: NTC)**  
PROJECT NAME  
**CANTUNG**  
MINERAL TYPE  
**TUNGSTEN**  
PROJECT TYPE  
**MINE**  
PRODUCTION (2011)  
**2,477,140 KG OF WO3 @ 0.93%**

**6** COMPANY  
**PLAYFAIR MINING LTD. (TSX-V: PLY)**  
PROJECT NAME  
**LENED**  
MINERAL TYPE  
**TUNGSTEN**  
PROJECT TYPE  
**EXPLORATION**  
SELECTED DRILL RESULT  
**5 M @ 1.75% WO3**

**7** COMPANY  
**STRONGBOW EXPLORATION INC. (TSX-V: SBW)**  
PROJECT NAME  
**NICKEL KING**  
MINERAL TYPE  
**NICKEL**  
PROJECT TYPE  
**EXPLORATION**  
NI 43-101 INFERRED RESOURCE  
**33.061 million mt @ 0.36% Ni, 0.09% Cu & 0.017% Co**  
CUTOFF GRADE  
**0.2% NI**  
NI 43-101 INDICATED RESOURCE  
**11.111 MILLION MT @ 0.4% NI, 0.1% CU & 0.018% CO**  
CUTOFF GRADE  
**0.2% NI**

# Nickel

While still a relatively small player in the Northwest Territories mining industry, nickel can still have a part to play in its development and diversification. Ken Armstrong, president and CEO, Strongbow Exploration, said of their Nickel King deposit: "A NI 43-101 compliant resource estimate was 11 million mt at 0.4% nickel, with a further 33 million mt at 0.36% nickel. The density of drilling has thus far been insufficient to determine the full extent of mineralization along the entire strike length, although today all holes have encountered mineralization within the entire 2,600 m." This project has been put on hold due to the price of nickel, though it remains a strong asset.

Other nickel properties are undertaking similar moves, with Kalgoorlie Mining, (formerly US Nickel), currently focusing instead on their Bullant gold project in Australia and seeking to divest themselves of their Snowbird nickel project.

Nickel, which has been on a downward price trend for almost five years, is not expected to see this improve until 2013. •

# Tungsten

North American Tungsten Corp. Ltd.'s Cantung mine is the fourth mine in operation in the Northwest Territories, providing 4% of the world's tungsten. As China continues to restrict tungsten exports, this mineral becomes more critical for the construction of items as diverse as jet engines to light bulbs and also has military applications.

"Historically, recycled tungsten has taken up some of the deficit between supply and demand; and counts for some 35% of the overall worldwide supply. This however has now reached its maximum limit. The DLA (Defense Logistics Agency) in the United States stockpiles virtually every element on the periodic table. Traditionally they have had a significant stockpile of tungsten, which they have auctioned off to industry over the last 15 years, equating to some 3% of the overall world's supply. I believe that future auctions will be put on hold... Combine this with the recycling ceiling, other than North American Tungsten there is very little additional western mining production," said Stephen Leahy, chairman and CEO at

North American Tungsten.

Speaking of their Cantung mine, Leahy said: "Cantung is a mine that has never been drilled out, and we currently estimate that it has three more years mine life; however, recent exploration should lead us to new areas and zones that previously were thought not to exist, but grade will be the key. ... Drilling and production continues, and in the last 18 months we have invested over \$30 million in the Cantung mine." •

# Rare earth elements

With only two initial companies looking at rare earths in Canada's North as recently as 2007, this number has been said to now be as high as 170. "China's restrictions on rare earth exports received a great deal of media publicity because they are strategic and vital to so many new technologies and that China was virtually the only primary source of supply. This publicity generated a great deal of investor interest allowing companies like Avalon to raise the capital to move development stage projects forward. A speculative bubble developed in 2010 that created a stampede of new entrants into rare earths exploration but interest has cooled dramatically over the past 12 months leaving only the most advanced companies such as Avalon still active," said Brian Chandler, COO, Avalon Rare Metals Inc.

For those seeking other sources, the Northwest Territories again holds promise. "Avalon is in position to become one of the first large scale producers of Heavy Rare Earth Elements (HREE) products outside of China. A pre-feasibility study was completed on Nechalacho in 2010 and subsequently updated in June 2011. A definitive feasibility study is presently being prepared by SNC-Lavalin which is targeted for completion in the second quarter of 2013. Avalon is fully-funded to complete the feasibility study and is presently working with financial advisors to arrange the \$1 billion in capital that will be needed to build the operation. We expect to develop the project in partnership with at least one user of rare earths. Full-scale construction is scheduled to begin in 2014 with initial production targeted for late 2016. First deliveries of product to market would be in 2017," said Chandler. •

# Interview with Stephen Leahy

CHAIRMAN AND CEO, NORTH AMERICAN TUNGSTEN CORP. LTD.

## Can you outline the unique geological characteristics of the Cantung mine, and what are the projected mine life and production figures of Cantung?

Cantung began as an open-pit operation in the early 1960s; it was a high-grade deposit but seasonal due to its elevation and remote location in the Northwest Territories 300 km north of Watson Lake, Yukon. Canada Tungsten believed it was coming towards the end of the mine's reserves, drilled in the vicinity and hit the E Zone, and went underground in 1972. The key for Cantung mine is its grade. During its open-pit operation it was producing 2% WO<sub>3</sub>, tungsten trioxide; today, although we are underground, it is continuing to produce some of the highest grade tungsten globally, and outweighs the high cost risk factor of operating underground and in a remote location. Other potential or existing tungsten mines in the western world that are arguably closer to infrastructure and probably some are open-pit, lends them to mine a lower grade material. Cantung is a mine that has never been drilled out, and we currently estimate that it has three more years mine life; however, recent exploration should lead us to new areas and zones that previously were thought not to exist, but grade will be the key. Initial reports indicate at least 1% WO<sub>3</sub> in these new areas; we are confident that when we update our NI 43-101 we should see a mine life extension at Cantung. Drilling and production continues, and in the last 18 months we have invested over \$30 million in the Cantung mine.

## What business strategy will you be following for your Mactung deposit?

We have formed a strategic committee of the board to look at the Mactung business strategy. With the \$400 million capital expenditure of Mactung, multiple partners based on a joint venture/off-take formula is the preferred option. Currently, most interest is coming from consumer companies who are interested in off-take. Our NI 43-101 on Mactung indicates 33 million mt of 0.88% WO<sub>3</sub>, the largest high-grade

tungsten deposit in the world.

## China has recently restricted the export of tungsten and other strategic minerals; do these restrictions urge investors towards junior companies who focus on deposits like Mactung?

Even with a considerable price rise and awareness that tungsten is a strategic metal in short supply, causing industry problems, we have not seen significant exploration for tungsten, resulting in old projects being resurrected. However, old projects have been resurrected most of which are in Canada, followed by Australia. The problem is that China continues to restrict tungsten exports, developing its own value added industries. The West needs to do develop its own resources; the multitude of projects have increased from five, 10 years ago, to 40 of which arguably only several will come on-stream. Roskill, a consulting company in England which carries out research into mining and strategic metals, has said that even with several new tungsten mines coming on-stream in the West, including Mactung, they will not be able to supply the ever-increasing demand for tungsten, growing annually at 6% to 8% in its traditional uses. This does not account for new tungsten applications, i.e. jewelry, electronics.

Historically, recycled tungsten has taken up some of the deficit between supply and demand; and counts for some 35% of the overall worldwide supply. This however has now reached its maximum limit. The DLA (Defense Logistics Agency) in the United States stockpiles virtually every element on the periodic table. Traditionally they have had a significant stockpile of tungsten, which they have auctioned off to industry over the last 15 years equating to some 3% of the overall world's supply. I believe that future auctions will be put on hold, arguably for two reasons: (1) with only several years of stockpile supply remaining, the USA defense community is concerned about having no tungsten; and (2) the low quality of material remaining in the stockpile. Combine this with the

recycling ceiling, other than North American Tungsten there is very little additional western mining production. If demand continues and no new production is forthcoming, Western manufacturers will not introduce new products to the market containing tungsten: China will.

## What are some of the key challenges of operating in northern Canada?

Certainly weather and remoteness are challenging but as we have successfully operated in the North for the last decade we are used to working in such severe climates. Bureaucracy, permitting and regulations also pose as operating constraints in the Northwest Territories, one reason being it has dual jurisdiction, Yellowknife and Ottawa, unlike Yukon which after devolution has a much more streamlined approach to permitting and regulations. The Northwest Territories has not achieved devolution and does not control its destiny on resources, it has layered bureaucracy. In addition, there is a host of national agencies, such as INAC (Indian and Northern Affairs Canada), the Department of Fisheries, Environment Canada, that umbrella the jurisdictions; industry needs certainty. Recent announcements by the federal government have indicated a significant streamlining of regulations to reduce the overall bureaucracy: this is a very positive step.

## What is your vision for North American Tungsten and do you have a final message?

For the foreseeable future North American Tungsten will focus on its current projects, the Cantung mine, and the development of the Mactung deposit. There are three elements to our success; first, safety, it is not expensive; it is priceless. Secondly, corporate responsibility is maintained as a significant part of our total strategy; and thirdly be respectful and engage with the surrounding community ensuring an overall growth benefit for the region.

A large percentage of northerners have a 'can do' attitude having experienced living in tough conditions for a very long time, and historically, are independent and proud. They now want to enjoy the economic initiatives associated with mining once the regulatory regime is streamlined. Northern Canada has one of the largest undeveloped resource bases of anywhere in the world. •



# Interview with Raymond Hrkac

PRESIDENT AND CEO, GGL RESOURCES CORP.

## Can you give a brief overview of GGL Resources Corp.?

GGL (Gerle Gold Limited) was founded in 1981 (by acquiring the McConnell gold property in British Columbia and maintains a 100% interest) and went public in 1983. In 1992, due to depressed commodity prices and a political change in B.C., we moved to the Northwest Territories to explore for diamonds, which we continue to this day. In 1995 we entered and maintain a joint venture with De Beers in the Mountain Province Doyle area. After multi-million dollar exploration expenditures, GGL has a number of drill ready diamond targets based on indicator minerals and geophysics. While exploring for diamonds in the Providence Greenstone Belt (PGB), a nickel discovery in 2006 highlighted the areas potential for gold and VMS. In 2007 we began exploration for this potential.

## Are you expecting the Providence Greenstone Belt to repeat the historic success of other explored greenstone belts?

GGL has staked mineral claims within 120 km of the PGB whose geological characteristics fit in the Archaean greenstone mold. In 2005 an overall government sponsored structural and geological study was completed which mapped an 800 km long rift zone going all the way through the Slave Craton from Yellowknife to the Arctic coast. These rift zones are extremely important being related to mineral deposits, which include not only nickel but gold and VMS deposits. Support for this lies in historical exploration in the 1960s and 1970s of the PGB area by major exploration companies that confirmed the presence of VMS copper, zinc, lead, silver, gold deposits on GGL's claims. Our main focus is the PGB property with the primary focus on gold, VMS, diamonds and nickel in that belt. We have developed drill targets on three of our gold discoveries, and made two new discoveries of VMS deposits. In 2008 we invested \$1.5 million in a successful airborne VTEM survey designed to discover massive sulfides.

## What is the current status for your PGB project and what is your business model to move the project forward?

In the summer of 2007 we commenced exploration of the PGB property for minerals, in addition to diamonds. We are now ready to drill the discoveries located; gold discoveries are high grade, and VMS have good values. Raising capital or finding a partner is now our priority.

In our press release of April 2007, we announced the area had potential for nickel; our stock went from 13 cents to \$1.50 in one day, the largest single trading day for any junior company on the Venture Exchange. Since 2008 our stock has collapsed along with many others; high-risk early stage exploration projects are not receiving support. In the current market GGL has to consider all options to move the project forward.

## Is nickel still a priority for GGL in this project?

GGL has 60 km of favorable nickel geology within the PGB, and has located through geophysics and geochemistry many areas suggested for drilling. A discovery of nickel by drilling on an adjacent claims has confirmed the nickel potential of the area. Currently, our primary focus is on our gold and diamond discoveries that require less infrastructure than VMS and nickel deposits.

## Have you found it difficult to educate investors about VMS?

VMS is a difficult concept, but exciting originating from the black-smokers at the bottom of the ocean, recently featured by National Geographic; the deposits we are looking at were formed 2.7 billion years ago. To help the education of investors we have been assisted by MMG's progress in the Northwest Territories, and Sabina Gold and Silver Corporation's substantial press coverage of a property sale to Xstrata.

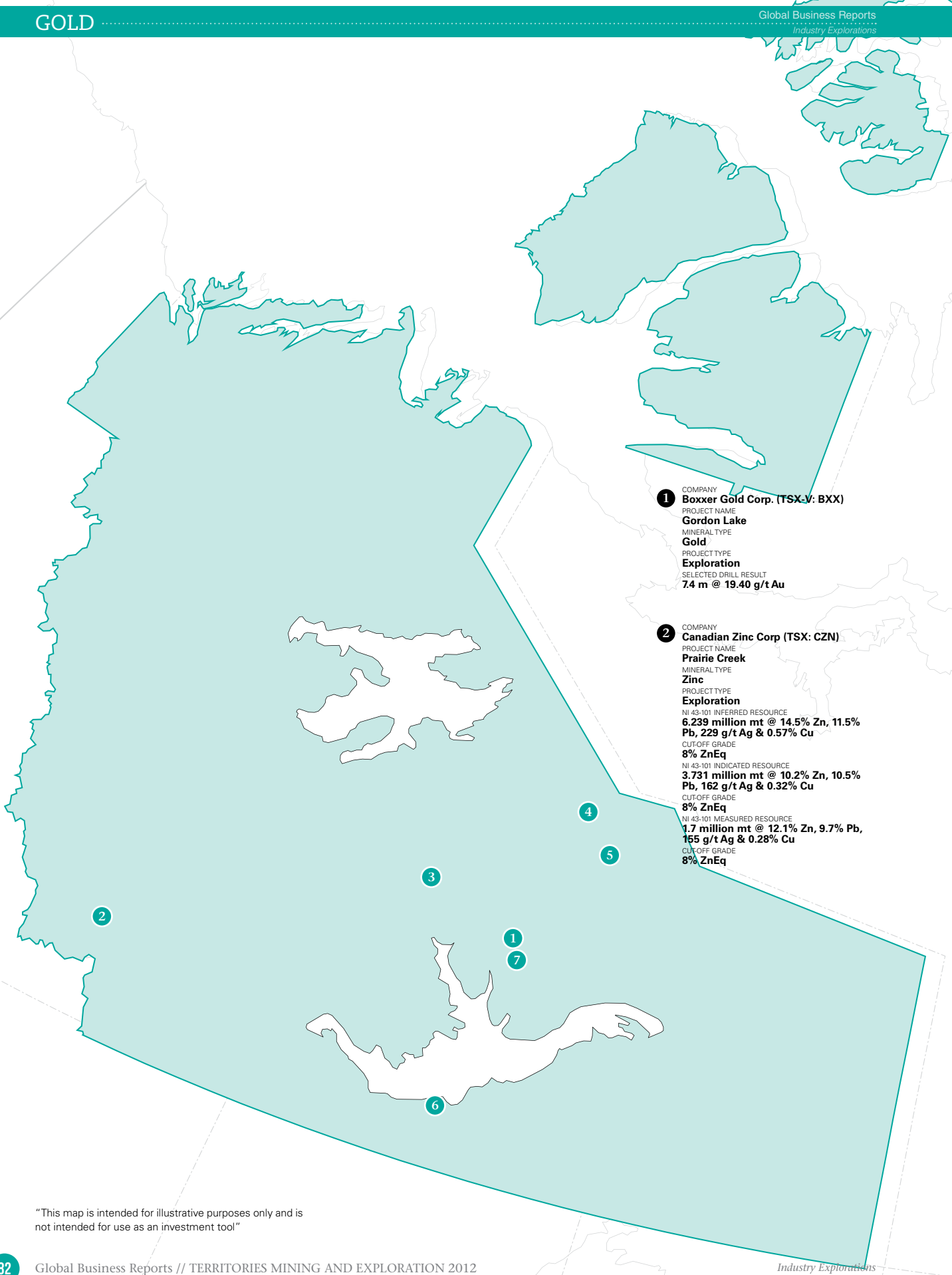
## Do you have a final message for our readers or any other points to add?

The Northwest Territories Chamber of Mines has been developing an infrastructure plan, and the Canadian government recognizes the economic importance of the Canadian mining industry and is amenable towards infrastructure improvements to the Northwest Territories and Nunavut. The mining community could do more in public relations to support its industry. It is important worldwide to appreciate how significant the mineral resources produced by the mining industry is to our everyday life. •

**GGL RESOURCES CORP.**

EXPLORING OUR NEW GOLD AND VMS DISCOVERIES WITHIN A PRISTINE ARCHAIC GREENSTONE BELT WITH ADDITIONAL TARGETS FOR DIAMONDS AND NICKEL

**GGL RESOURCES CORP.**  
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**1** COMPANY  
**Boxxer Gold Corp. (TSX-V: BXX)**  
PROJECT NAME  
**Gordon Lake**  
MINERAL TYPE  
**Gold**  
PROJECT TYPE  
**Exploration**  
SELECTED DRILL RESULT  
**7.4 m @ 19.40 g/t Au**

**2** COMPANY  
**Canadian Zinc Corp (TSX: CZN)**  
PROJECT NAME  
**Prairie Creek**  
MINERAL TYPE  
**Zinc**  
PROJECT TYPE  
**Exploration**  
NI 43-101 INFERRED RESOURCE  
**6,239 million mt @ 14.5% Zn, 11.5% Pb, 229 g/t Ag & 0.57% Cu**  
CUTOFF GRADE  
**8% ZnEq**  
NI 43-101 INDICATED RESOURCE  
**3,731 million mt @ 10.2% Zn, 10.5% Pb, 162 g/t Ag & 0.32% Cu**  
CUTOFF GRADE  
**8% ZnEq**  
NI 43-101 MEASURED RESOURCE  
**1.7 million mt @ 12.1% Zn, 9.7% Pb, 155 g/t Ag & 0.28% Cu**  
CUTOFF GRADE  
**8% ZnEq**

"This map is intended for illustrative purposes only and is not intended for use as an investment tool"

**3** COMPANY  
**Fortune Minerals Ltd. (TSX: FT)**  
PROJECT NAME  
**NICO**  
MINERAL TYPE  
**Gold**  
PROJECT TYPE  
**Copper**  
PROVEN MINERAL RESERVES  
**20.795 million mt @ 0.99 g/t Au, 0.11% Co, 0.15% Bi & 0.04% Cu**  
PROBABLE MINERAL RESERVES  
**12.193 million mt @ 1.09 g/t Au, 0.11% Co, 0.13% Bi & 0.04% Cu**

**4** COMPANY  
**GGL RESOURCES CORP. (TSX-V: GGL)**  
PROJECT NAME  
**PROVIDENCE GREENSTONE BELT**  
MINERAL TYPE  
**GOLD**  
PROJECT TYPE  
**EXPLORATION**

**5** COMPANY  
**SEABRIDGE GOLD (TSX: SEA)**  
PROJECT NAME  
**COURAGEOUS LAKE**  
MINERAL TYPE  
**GOLD**  
PROJECT TYPE  
**EXPLORATION**  
NI 43-101 INFERRED RESOURCE  
**48.963 million mt @ 2.18 g/t Au**  
CUT-OFF GRADE  
**0.83 g/t Au**  
NI 43-101 INDICATED RESOURCE  
**93.914 million mt @ 2.28 g/t Au**  
CUT-OFF GRADE  
**0.83 g/t Au**  
NI 43-101 MEASURED RESOURCE  
**13.401 million mt @ 2.53 g/t Au**  
CUT-OFF GRADE  
**0.83 G/T AU**

**6** COMPANY  
**TAMERLANE VENTURES INC. (TSX-V: TAM)**  
PROJECT NAME  
**PINE POINT**  
MINERAL TYPE  
**ZINC**  
PROJECT TYPE  
**EXPLORATION**  
NI 43-101 INDICATED RESOURCE  
**4.675 million mt @ 1.04% Pb & 2.20% Zn (R-190 area only)**  
CUT-OFF GRADE  
**1% Zn**  
NI 43-101 MEASURED RESOURCE  
**3.355 million mt @ 1.26% Pb & 2.34% Zn (R-190 area only)**  
CUT-OFF GRADE  
**1% ZN**

**7** COMPANY  
**TYHEE GOLD CORP. (TSX-V: TDC)**  
PROJECT NAME  
**YELLOWKNIFE**  
MINERAL TYPE  
**GOLD**  
PROJECT TYPE  
**EXPLORATION**  
NI 43-101 INFERRED RESOURCE  
**5.774 million mt @ 2.62 g/t Au**  
CUT-OFF GRADE  
**0.5 G/T AU**  
NI 43-101 INDICATED RESOURCE  
**15.310 MILLION MT @ 1.68 G/T AU (OPEN PIT) + 4.466 MILLION MT @ 3.58 G/T AU**  
CUT-OFF GRADE  
**0.5 G/T AU**  
NI 43-101 MEASURED RESOURCE  
**7.339 MILLION MT @ 1.59 G/T AU**  
CUT-OFF GRADE  
**0.5 G/T AU**

# Gold

While diamonds have historically driven the Northwest Territories mining industry, there has been little focus on gold in the territory.

This, however, is starting to change. As the financial crisis in Europe continues, and the future of the dollar remains unclear, gold continues to be a commodity of choice. As of September 2012, spot gold was headed for its largest quarterly gain since the second quarter of 2010, which has kept investor eyes on this shining commodity.

"The NICO deposit was discovered by Fortune Minerals in 1996... The metals that are enriched in our NICO project are very different and comprised of gold, cobalt, bismuth, and copper... We are targeting production for 2015, based on financing and permitting... Fortune's business model will be to take the NICO deposit into mine production. We have invested US\$100 million in this deposit," said Robin E. Goad, president and CEO of Fortune Minerals Ltd.

Other juniors also have an eye on the territories gold potential. "Our main focus is the PGB property with the primary focus on gold, volcanic massive sulfide deposits (VMS), diamonds and nickel in that belt. We have developed drill targets on three of our gold discoveries, and made two new discoveries of VMS deposits. In 2008 we invested \$1.5 million in a successful airborne VTEM survey designed to discover massive sulfides," said Raymond Hrkac, president and CEO, GGL Resources.

As with other key commodities, the speed of development and advancement of gold projects is going to rely heavily on ensuring the Northwest Territories keeps moving towards a more investment-friendly environment. •

# Zinc

Zinc has a long history in Canada's North. Arguably leading the way in post-war resource development, neighboring Nunavut had two lead-zinc mines in production; Nanisivik and Polaris, both of which closed in 2002.

The Northwest Territories is also home to significant lead-zinc deposits and as the territorial government seeks to diversify away from diamonds, they are receiving significant attention.

"The Prairie Creek mine project is arguably one of the highest-grade base metal deposits in the world with a combined zinc-lead grade of over 22% on average together with 5 oz or 6 oz silver per mt. The ore body is large and only partially drilled, and has significant exploration potential. Canadian Zinc Corp. believes that when Prairie Creek goes into production, it will have a mine life in excess of 20 years. The principal reason for it not being in production sooner is due to its remote location in the Mackenzie Mountains in the Northwest Territories," said John F. Kearney, chairman and president, Canadian Zinc Corp.

Also unique to this particular project is the mine training initiative it partnered with the federal government. "As part of the job opportunity and training initiatives, we have negotiated with the federal government, under the Human Resources and Skills Development Canada program, funding of a program to develop the skill set of the local aboriginal communities to enable them to participate in the mine project; Canadian Zinc and the Mine Training Society of the Northwest Territories are involved in the training program," said Kearney. Innovation in mine training may very well prove to be a key factor in ensuring the next generation of miners can seize the opportunities present in their territory. •

# Interview with John Kearney

CHAIRMAN AND PRESIDENT, CANADIAN ZINC CORP.

## Can you give a brief history of Canadian Zinc Corporation's flagship project, Prairie Creek Mine?

The Prairie Creek Mine project is arguably one of the highest-grade base metal deposits in the world with a combined zinc-lead grade of over 20% on average together with 5 oz or 6 oz silver per mt. The ore body is large and only partially drilled off, and has significant exploration potential. Canadian Zinc Corporation believes that when Prairie Creek goes into production, based on reserves alone, it will have a mine-life of 11 years. Inferred resources, if successfully drilled off, have the potential to double the mine life and the deposit remains open to the north and south. The principal reason for it not being in production sooner is due to its remote location in the Mackenzie Mountains in the Northwest Territories. It is also in an environmentally sensitive area; Canadian Zinc has now addressed all the environmental concerns.

## How do you plan to move the mine into production, will it be solo or joint venture?

Over the last four years our strategy has been to bring the mine into production ourselves. During this time we resolved the environmental issue which was the proximity of the mine to

Nahanni National Park, and the authorities wish to extend the boundaries of the park; in 2009 we entered into an agreement with Parks Canada whereby the mine would not be a part of the park. In 2009 we commenced working through the environmental assessment; this was successfully completed in December 2011. The Mackenzie Valley Environmental Impact Review Board issued a very positive report on the environmental assessment concluding that the mine would unlikely have an adverse environmental impact and recommended that the project proceed. The Pre-feasibility study had been on-going for 18 months and was published in June. We are now moving on to the marketing of the lead and zinc concentrates that will be produced from the mine, and evaluate the financing opportunities, including joint venturing, for the \$160 million required to forward the mine into production.

## Can you give details of the Skills Partnership Fund Agreement that Canadian Zinc has with the government?

One of the most important elements of developing a project is a social license to operate. Canadian Zinc has made a major effort to work closely with the communities located within the vicinity of its mines. In 2011 we negotiated Impact Benefit Agreements with the communities of Nahanni Butte and Fort Simpson under which Canadian Zinc has secured the support and cooperation of the communities. Canadian Zinc has pledged its support for job/business opportunities, training, and financial participation. As part of the job opportunity and training initiatives, we have negotiated with the federal government, under the Human Resources and Skills Development Canada Program, funding of a program to develop the skill set of the local aboriginal communities to enable them to participate in the mine project; Canadian Zinc and the Mine Training Society of the Northwest Territories are involved in the training program. Funding of the project will be: \$3.2 million from federal government; \$500,000 from the Mine Training Society and territorial government; and the equivalent amount in contribution in kind from Canadian Zinc.

## What have you found to be the key challenges and opportunities of operating in the Northwest Territories?

The opportunities are the undeveloped geological potential. The environment and permitting are the major challenges; currently, the process is very difficult to navigate and there are no prescribed time-lines in the procedure. The whole process was a significant challenge for Canadian Zinc, but was successfully negotiated albeit at a very slow pace.

## What are your current views on the junior market in Canada?

March/April/May 2012 we have seen a decimation of the investment market across the mining industry. The intermediate juniors have been severely hit and the small juniors wiped out. Currently, the market is very difficult for resource companies, particularly junior companies; this is not a function of the industry, metal prices are positive and the outlook for project development equally so. The challenge arises in the Macroeconomic Situation with major crises globally causing a flight of money away from the stock markets, junior investment market, and disaffection with the resource market. There is a plethora of junior companies in Canada but a large proportion are carrying out exploration abroad. In Canadian Zinc's sub-sector there is a shortage of junior exploration companies. •



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# Interview with Robin Goad and Thomas Rinaldi

PRESIDENT AND CEO; VICE PRESIDENT OPERATIONS, FORTUNE MINERALS LTD.

## Can you outline the geological appeal and traits of the NICO deposit?

**REG:** NICO belongs to a class of deposit called IOCG (Olympic Dam type deposits), which are typically very large deposits. The NICO deposit was discovered by Fortune Minerals in 1996 upon completion of the fourth hole of drilling. During the same period of this initial mineral exploration activity, the Geological Survey of Canada released results of its airborne geophysical survey, identifying the largest and strongest hydrothermal potassium anomaly ever discovered in Canada right over our claims. The survey was a third party validation of the initial exploration activities that we conducted from an independent, creditable source.

## Are you planning to take NICO into production yourselves, and what is the time-line for moving NICO forward?

**REG:** Fortune's business model will be to take the NICO deposit into mine production. We have invested \$100 million in this deposit which includes: not only drilling but \$20 million of underground test mining cross-cutting the ore body to verify the geometry and grades of the deposit; \$15 million of metallurgical test works including four pilot plant studies at Lakefield Research; and the acquisition of the buildings and equipment from the old Golden Giant Mine at Hemlo, Ontario. There has been innovative development work as to how the project is to be mined and processed, including processing in a lower-cost environment, Saskatchewan. We are targeting production for 2015, based on financing and permitting. Currently, the Sue-Dianne copper-silver-gold deposit is not just an inventory of metal in the ground, but represents a potential future source of incremental mill feed to prolong the plant life at NICO, or it can be developed concurrently.

## Can you offer more details of your pi-

## lot plant test for production of cobalt sulphate?

**REG:** The metals that are enriched in our NICO project are very different and comprise of gold, cobalt, bismuth, and copper; cobalt is a metal with very significant growing usage principally in chemicals used in the manufacture of lithium ion and nickel metal hydride batteries. These batteries account for the largest growth in the demand for cobalt, being used in electric cars, portable electronic devices such as cellular telephones, portable computers, iPods, Game Boys, anything that is electronic and portable. To date, our focus has been to produce the most marketable high purity cobalt metal, but with the proliferation of hybrid-electric and electric cars, each containing about 7 lbs to 10 lbs cobalt in their batteries, the ability to produce cobalt sulphate is important. We are now trying to identify and enter into agreements with partnerships. These are principally in Asia, where the focus of these companies is cobalt chemicals used in the manufacture of the batteries. Fortune Minerals knew that it could process its cobalt into a cobalt sulphate product of battery-grade; we have piloted and just completed a study, verifying that we can produce a high quality cobalt sulphate material. This initiative was customer-driven and Fortune has identified electronic companies globally wanting this product.

## What have you found to be the key challenges and opportunities of operating in the Northwest Territories?

**REG:** The Northwest Territories has a tremendous mineral endowment; and on-the-ground access to significant mineral deposits is greater than in other parts of Canada. The challenges are that it is a very expensive place to operate; logistically challenging, typically project access is by air only; and there is a prolonged regulatory process to develop deposits. The Canadian government has acknowl-

edged and is addressing the problem of the cumbersome processing procedure. NICO should not have taken five years to permit, only two years; the junior mining industry faces investors who lack the stamina for such a prolonged processes.

## Is there enough international investor awareness of the resources found in the Northwest Territories?

**REG:** The Northwest Territories is the center for diamond mining in Canada, with Ekati, Diavik, Snap Lake and Gahcho Kue deposits. The mining industry contributes 40% of GDP for the Northwest Territories. The challenging infrastructure of the Northwest Territories and accompanying expensive transportation of resources means there are few base metal operations; predominantly high-value products, i.e. diamonds, and gold, are mined, easier, and less expensive to transport by air. Fortune Minerals is located in the southern part of the Northwest Territories, close to power, communities, and roads. NICO goes from ore in the Northwest Territories, to high-value end products at the Saskatchewan Metals Processing Plant, a fully vertically integrated project.

## Can you outline both your CSR initiatives and relationship with the local aboriginal groups in the Northwest Territories?

**REG:** Fortune has been actively engaged with First Nations since NICO's discovery in 1996 with aboriginal labor working at the site in positions to accommodate their skill level. Every environmental study that has been conducted on the property has included aboriginal participation to collect data.

**TRR:** We have three aboriginal employees from the Tlicho First Nation, two are former Chiefs. Duties include keeping the local community informed of the mine's progress and proposed infrastructure improvement. •





# Nunavut: Canada's Last Frontier

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"The Northwest Territories as a gold district has been short-changed and needs to be understood globally. Geologically the Northwest Territories, the Yellowknife district in particular, has been undervalued and under-appreciated. Tyhee Gold is confident that the Northwest Territories can be comparable with any gold district globally. Investors should look at the strong economic argument for projects such as those of Tyhee Gold. When comparing the Northwest Territories to other countries or regions, the Northwest Territories has a corrupt-free environment, better infrastructure and government, and a motivated and well-trained workforce and tremendous potential."

- Brian Briggs, *President and CEO,*  
*Tyhee Gold Corp.*

# The Great Beyond

## The potential of Nunavut's vast spaces

The territorial symbol of Nunavut is the inukshuk. Meaning "in the image of man," these stone figures stand vigil on Nunavut's vast tundra and treeless horizons, helping to guide those traveling through the territory. That these lonely figures are often the only sign of human influence for huge distances perfectly embodies both the scale and the emptiness of the land. However, although this may be Canada's most remote region, it also contains some of the most favorable under-explored geology of the country.

These vast empty spaces lend themselves easily to superlatives. Unsurprisingly, Nunavut is Canada's largest territory in terms of land area. It has the country's smallest population. Indeed, the territory is an almost unrivalled expanse of pristine emptiness. If considered in a list of population densities for the world's 240 sovereign nations and dependent territories, it would rank 241st: only if Antarctica were included would it be beaten.

As the northernmost territory, it has the coldest weather throughout the year, the coldest winters, the most snowfall and the longest deep snow cover season. It is Canada's newest territory.

All these things have profound effects on

the mineral industry seeking to make the most of the territory's undeniable mineral wealth. As youngest territory, Nunavut was originally part of the Northwest Territories and operated under the same mining framework as the territory until its separation in 1999 through the Nunavut Land Claims Agreement Act. As a result of this, Nunavut enjoys a unique status in Canada; it is the only territory or province to have completely settled all indigenous land and mineral claims. "Nunavut is [not] one entity, but two; the Nunavut Land Claims deal for Inuit only, which is held in Nunavut Tunngavik Inc. (NTI), and the public Nunavut Government which operate like a territorial government for all Nunavut residents" said Cathy Towtongie, president, NTI.

Under this framework, firms wishing to explore or mine on Inuit land need to reach an Inuit Impact and Benefits Agreement (IIBA): "under NTI there are three regional Inuit associations responsible for negotiating an IIBA for surface land; Inuit, via the regional association, will receive royalties from a mine and benefit in terms of employment and business opportunities," explained Towtongie.

The harsh climate and vast empty space of Nunavut constitute challenges for exploration or mining companies. Infrastructure is often scarce, forcing companies to rely heavily on sea and air to transport goods. Exploration seasons are often short. With the least amount of mapping of any prov-

ince or territory in Canada, it remains one of the country's most challenging regions; though perhaps due to this also offers those willing to tackle its higher risk for some of the world's largest and last undeveloped deposits.

"Nunavut is a great frontier, has massive resource opportunities, and is under explored. The challenges are its remoteness; detailed and logistical long-term planning is key to any operation; safety awareness and having accessibility to medical attention; and the bar for project economic viability is very high, therefore it is necessary to find rich deposits," said Bruce A. Counts, president and CEO, Bluestone Resources Inc., a diamond- and copper-focused exploration company in Nunavut.

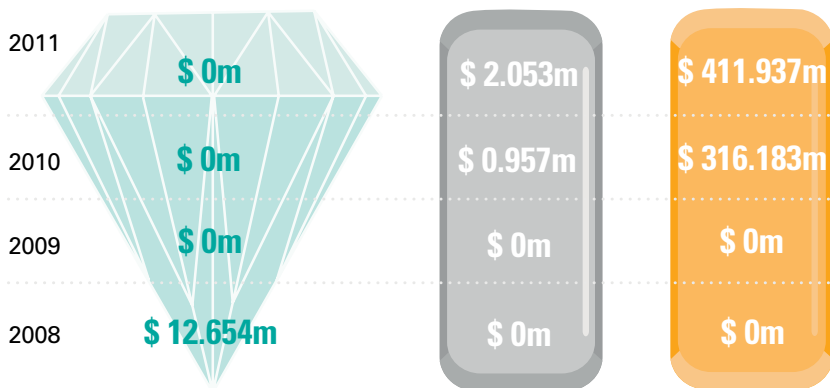
Enough companies have been tempted by this promise to make the mineral industry key to Nunavut's economy. "Mining and exploration is very significant to Nunavut. Aside from government, it is the main employer of residents throughout the territory, and represents about 25% of GDP," said Dianne Lapierre, manager of environmental assessment and regulation, Department of Economic Development and Transportation, Government of Nunavut.

Yet events in the past year have sent mixed signals for the future. In 2012, the Hope Bay mine closed its doors and Agnico-Eagle announced that it would be closing Meadowbank three years earlier than planned due to "persistently high costs" (according to a press release). While these events have left the industry cautious about their expectations in Nunavut, a number of other players have opted to push through with major operations. Construction at Mary River by Baffinland Iron Mines Corp., as well as the planned development of their Meliadine mine, could see the territories' GDP surge by 17% in 2013 and 14.2% in 2014 according to some estimates. The construction industry in Nunavut is also expected to benefit, with estimates that it will grow by 22.7% per year between 2012 and 2016.

Most recently, the Nunavut government has also clarified their stance on uranium development, providing a degree of confidence for the territory's three uranium developers: Areva Resources Canada Inc., Forum Uranium Corp. and Cameco Corp. In June 2012, the territory announced it is in favor of uranium mining, dependent on a number of conditions. •

## Value of Mineral Production in Nunavut

Source: NATURAL RESOURCES CANADA





# Interview with Honorable Eva Aariak

PREMIER, GOVERNMENT OF NUNAVUT



**Tell us about the economic policy you came to power on, and what role mining plays in it?**

Mining is very important to our young territory. With half of our population below the age of 25, you can imagine the strength of our future workforce for economic activities such as mining. Our land, comprising one-fifth of Canada, has tremendous natural resource opportunities. As well as one operating mine in the Baker Lake area, Nunavut currently has eight projects in an advanced stage of exploration. However, Nunavut has very unique circumstances: unlike Yukon and Northwest Territories, we don't have roads connecting our territory to the rest of Canada, so mines will need to export their production by boat or air. We have a historic infrastructure deficit that must be addressed in parallel with any development. Doing so will bring down the high cost of living and doing business in the Arctic.

The world is looking to Nunavut, and I can only see this increasing in years to come. Climate change is already impacting our land and especially our waters, which are opening to allow year-round shipping routes. For the Baffinland Mary River iron ore project, our very first railroad may be built from the mining site to the shore. This project is a huge opportunity: the company will be looking for 900 or more employees once production begins.

**How are you acting to ensure local people are trained to fill trade and management roles in the industry?**

In a young territory, with a young population, education is the most important issue for us to address – and our government is addressing it. The number of young people graduating from high school increases every year, and more and more are going on to post-secondary education. A special university preparatory school was established in Ottawa by the land claims organization, Tungavik Federation of Nunavut (now Nunavut Tunngavik Inc.) and these students are graduating from this school in great numbers, and our government hires

most of them. Nunavut does not yet have its own university, but one day it definitely will. I am happy to say that we opened our first trade school in Rankin two years ago. It is helping train our young people to work in the mining sector, as well as their own communities. The trade school is connected to Nunavut Arctic College, which has many programs of its own. This college, which was awarded degree-granting status last year, is also affiliated with many universities in areas such as nursing, teaching, environmental technology, mental health and law.

We passed our made-in Nunavut Education Act in 2008, replacing the legislation inherited from the Northwest Territories in 1999, and are now implementing it. It is true that a big challenge we currently face is the high dropout rate for high school students. This drop-out rate is the result of several underlying issues including our huge and devastating housing shortage (a recent survey showed that we need to build 3,000 houses to close the gap, plus another 90 houses in each year), food insecurity and the generational trauma of residential schools, to name a few.

**The private sector reports difficulties in meeting its Inuit-recruitment commitments. Are the levels of local employment expected in Nunavut realistic?**

A mine could not come in today and immediately recruit 300 or 400 people from the territory for the mine's workforce, but this is something we are working towards. Our population cannot realistically meet all the demands of mines, but at the same time it is very important for Inuit to develop the skills needed to work in them. How to accelerate our population's skills development in advance of the opening of major mining projects is a challenge that we are currently addressing.

**Some of the environmental regulations passed in Nunavut, such as the hunting season shipping ban, seem extreme to outsiders. Can you explain the logic behind them?**

The environment is of particular importance to us. If you see the price of food in our stores, you will understand why we are still so dependent on our fish, caribou and seal. Of course, the cost of hunting is going up these days as well. Eighty-five per cent of Nunavut's population is Inuit. Taking into account who we are and the way we live is crucial. The regulatory system we have in place is, I think, the best in Canada, with the Nunavut Impact Review Board, Nunavut Planning Commission and the Water Board. We, and the Nunavut Tunngavik Inc., are very much in support of the passing of the Nunavut Planning and Project Assessment Act imminently in the federal House of Commons, which will help to streamline the regulatory process. We are constantly in dialogue with all our stakeholders.

**Do you feel investors have a good understanding of Nunavut?**

One challenge we are facing is a lack of understanding in the outside world about who we are, and where we come from. Nunavut is a vibrant territory with proud inhabitants who are looking for opportunities. The creation of jobs is important, and we want to work together with the mining sector. There needs to be a fluid dialogue between the mining sector and both the Government of Nunavut and its Inuit organizations. Nunavut needs to understand what the mining sector is all about; the mining sector needs to understand what Nunavut is all about, and what our needs are. Of course, it would be much simpler if power were transferred from the federal government to the territory (through devolution), so that this dialogue could be much quicker and more direct. We have a settled land claim and a functioning government in place, and with the eyes of the world on Nunavut, we need to be able to have our say about what goes on in our backyard. •

# Interview with Honorable Peter Taptuna



DEPUTY PREMIER, GOVERNMENT OF NUNAVUT

**What makes Nunavut an appealing exploration destination, and what initiatives is the government taking to ensure that Nunavut remains a favorable operational climate?**

The diversity of Nunavut's resources makes the territory attractive as an investment and exploration destination. Discoveries were made as early as the 1930s; some on land that became Inuit-owned after the land claim was finalized. Nunavut is an appealing region for mineral exploration because of our settled land claim. Within our land claims agreement, we have a regulatory body that set up three IPGs (Institutions of Public Government): the Nunavut Impact Review Board reviewing and regulating all on-going developments; the Nunavut Water Board; and the Nunavut Planning Commission. All three IPGs were formed under the land claims agreement and carry out the review processes for the whole territory. Many of the current exploration and mining developments occur on Inuit-owned lands. All stakeholders and interested parties involved in exploration and development projects are involved in their regulatory processes. Historically, junior mining companies have been the main explorers in Nunavut, but in the recent past, the major international companies have entered our territory.

**Can you clarify Nunavut government's stance on uranium and how it will affect the exploration activity; are there concerns of uranium mining from the local communities?**

As a government we have a mining strategy, Parnautit which details our policy statement. Our government recently released its uranium policy. For the development of this policy there were consultations with several communities, including Baker Lake, as this community is potentially the most affected as the proposed location for AREVA's Kiggavik uranium project is 90 km away. All three regions in Nunavut have concerns with uranium mining. The territorial government does not have any jurisdictional responsibilities in permitting and licensing, but our government does have a major role in environmental evaluations of any proposed project. The recent reporting in the media of the post-tsunami problems with nuclear plants in Fukushima, Japan, and historically the use of uranium in atomic bombs in the Second World War at Hiroshima and Nagasaki have heightened people's concerns with uranium exploration and its association with nuclear power. These factors contributed to the government's position that we are in favor of uranium mining, with the proviso that any uranium mines are to benefit Nunavut residents, and be used for peaceful and environmentally-responsible purposes only.

**Is there sufficient energy and transport infrastructure in place to accommodate the projected growth of mining in Nunavut?**

Currently, there is insufficient infrastructure to manage the significant projected growth of mining in Nunavut. There are currently eight exploration and development projects that have the potential to become mines within the next decade. Nunavut is suffering from an infrastructure deficit; highways were built east to west across our country but the north was forgotten. Nunavut has the longest coastline in Canada, yet has only one incomplete marine facility. These factors, we believe, are deterrents to investors. In the south, it could take only seven years for a discovery to develop into a producing mine; in Nunavut, there are still undeveloped resources that were identified decades ago. The lack of infrastructure in Nunavut, the cost of shipping fuel to mine sites, and the shortage of skilled personnel are concerns for mining companies. The territory of Nunavut has no means of generating its own revenue, and currently does not have a royalty-sharing agreement with Ottawa. Other than funds derived from our local taxes, the majority of funding originates from Ottawa and is just adequate to run government departments such as education, and health; there is little left for infrastructure needs. We have the fastest growing population in Canada and this infrastructure deficit has the potential to become a major crisis with the shortage of health-care facilities and housing. To take advantage of the territory's vast resource potential, we have to promote the benefits of fast-tracking the territory's economic stimulation. •



Photo courtesy of Agnico-Eagle Mines Ltd.

## NUNAVUT

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# Interview with Tom Hoefer

EXECUTIVE DIRECTOR, NWT AND NUNAVUT CHAMBER OF MINES

## Can you give a brief overview of the NWT & Nunavut Chamber of Mines' history and its key milestones in the North?

The NWT & Nunavut Chamber of Mines was founded in 1967, and existed as a small association of volunteers until the 1970s, when it hired a full-time general manager and executive director. It has been a steady growth from being a small industry association. The organization was formerly called the NWT Chamber of Mines, but has covered Nunavut as well since the division occurred in 1999. It is tough as a nonprofit to operate in two territories and still cover our costs; if the opportunities continue to develop in Nunavut, it is conceivable that they would be able to have their own association. We now have approximately 900 members, including the majors, the juniors, service companies, and individuals. Last year we opened an office in Iqaluit to reflect the newfound interest in that territory. Overall, I do not measure our history in terms of milestones, but as more of a conveyor belt of work to change legislation and communicate the benefits of our industry to various audiences. Though one accomplishment of note was in the 1990s, when we took over the Geoscience Forum; this is the largest mining industry conference in the North, and has been very successful in fostering connections.

## What are some key activities on the Chamber's agenda?

Three years ago we identified five areas of strategic focus: improvements in the regulatory environment and access to land; improving Aboriginal relations; encouraging infrastructure development; active communications and public relations; and supporting our own membership and operations. A current focus is on the regulatory environment, as it is critical to have a certain type of, and efficient regulatory system in place if you want to attract investment and maintain a healthy industry. Another hallmark of the North is land use

planning, as access to land is the lifeblood of our industry.

## As far as land use planning, is this a partnership with the local populations and both the territorial and federal government?

Land use planning is a partnership between the local populations and both the territorial and federal government. The land claim processes here now create a methodology for Aboriginal governments and public governments to collectively participate in managing resources in the North. The legislation has created a number of public boards of governance, including land use planning boards, land and water boards, and an environmental impact review. This cooperation also reflects the increasing recognition in Canada of the constitutional duties of the country to honor Aboriginal rights. If you are a resource developer, you must take Aboriginal relations into account when planning your project. This can be a challenge, as many of the communities are not used to this type of industrial economic development, having traditionally relied on fur, hunting, trapping, and fishing to sustain themselves. However, the reality now is that there is no more fur industry in the North, and the young people are not living off of the land as previous generations did. Educational levels and workforce participation rates are both low, which is another hurdle the industry faces when trying to help the communities maximize their opportunities to benefit from these developments.

## What initiatives are in place to further Aboriginal involvement in the mining industry?

The situation in the NWT is a shining example of the progress we have made since the discovery of diamonds here in 1991. Until that point, Aboriginal involvement was minimal, but we now see 40% Aboriginal employment in one of the new mines in Nunavut. A major catalyst for this change was a program called the Aborig-

inal Skills Employment Program (ASEP) that existed for 10 years as a partnership between Aboriginal groups, the government, and the industry. The program ended in 2012, so we are looking at ways to continue the momentum. The federal and territorial governments have had business development programs for years, but they had been lacking a real driver, which now exists in the form of the mining industry.

## While not detracting from the Yukon, how do you attract attention from the international investment community to highlight the potential of the NWT and Nunavut?

The Yukon is a good model of how to do it right. The Yukon government was very aggressive about marketing themselves internationally, with the government taking the initiative to take trips to Europe and China in order to promote the territory's resources. Some of this has been happening in the North, with participation from both the government and members of the Chamber of Mines. The opportunities will increase as the NWT moves forward with its mineral strategy, and we are prepared to help our members in this marketing.

## Looking toward the future, where do you expect to see the mining industry in the North in two to three years?

Our goal as the Nunavut and Northwest Territories Chamber of Mines is to maintain a healthy mining and exploration industry in these territories. In the NWT, we must look long-term to ensure that we have our bases covered when the diamond mines begin to shutdown; the first is scheduled to close in 2019. The industry is tremendously vibrant here at the moment, and we hope to sustain this level of growth. While it is tough to raise money in the marketplace currently, we hope to strike while the iron is hot and get these projects into production before commodity prices change, as they inevitably will. Another primary goal is to increase local involvement as these projects proceed. Mining is a sector that can create wealth, but it is also a tool that does so by creating jobs and other business opportunities. We are very optimistic that we will be able to maximize the opportunities and benefits for these communities in both territories. While the North is remote, it is vastly underexplored, so you have greater odds of finding something really exciting here. •

# Rules and Regulations

## An overview of the regulatory framework in Nunavut

The youth of Nunavut as a political entity separate from the Northwest Territories has resulted in a regulatory environment unique in both its obstacles and its advantages. The processes companies must engage are characterized less as a staid certainty than a dynamic learning experience for all involved: companies, government, and Inuit peoples.

Hon. Peter Taptuna, Deputy Premier and Minister of Economic Development and Transportation, Government of Nunavut, said, "in the last 10 years the Nunavut government has achieved great success of attracting major mining companies to the territory bringing more secure investment. Most of the developments are on Inuit-owned lands, and the company that advocates any project must negotiate before commencing production Impact Benefit Agreements with the Inuits, monitored by NTI. The regional Inuit Associations endeavor to negotiate contracts with developing service companies."

Lapierre, whose Mineral and Petroleum division at the Department of Economic Development and Transport represents territorial government interests at the environmental assessment stage, explained the permitting system in the territory: "the Nunavut Land Claim has established institutions of public government, one of which is the Nunavut Planning Commission. Currently there are two land use plans and the commission must determine whether any proposed project conforms to one of these. It is a bit of a piecemeal system at this point, but the commission is developing a Nunavut-wide land use plan. Once this happens, it will be clearer: every project will go to the planning commission for review and then onto the Nunavut Impact Review Board (NIRB) if it conforms

to the plan. At the moment, projects in jurisdictions not under the current land use plans go to other authorizing agencies, such as federal or regional Inuit for land access, and the Water Board for a water license in order to be referred to the NIRB."

"When projects are referred to NIRB, the Review Board determines whether or not it requires further review. This process is all set out in Article 12 of the Land Claim. In the Review Board's screening, it determines whether a project can go ahead with or without terms and conditions, whether it must be referred to a full review with a more detailed regulatory procedure, or whether it should be rejected altogether. If the Board recommends a review, this goes to the Federal Minister of Aboriginal Affairs, who makes a final decision on whether to conduct one, and what type [of review it will be]," said Lapierre.

While there have been concerns about processing and permitting time, there appears to be a generally favorable view of the current regulatory framework present in the territory. "We believe Nunavut is a favorable jurisdiction for doing business, and we have not had any real problems with the regulatory system we operate under there. We have a very good relationship with all of the regulators responsible for issuing permits necessary to conduct our work. What we have seen in some cases though is limited capacity and overextended regulators.

There are many projects coming down the line in Nunavut, and this is a recent phenomenon, but the regulatory capacity has not increased to meet the increased needs of industry. The federal government is working hard to improve inefficiencies in the regulatory proce-

dures. We are confident that the federal government is aware of these concerns and are pleased to see the Senator and MP from Nunavut working hard to make the territory a place that welcomes investment and responsible development," said Brooke Clements, president of Peregrine Diamonds.

The relative youth of Nunavut's mining industry, and indeed Nunavut itself, is confirmed by Adrian Fleming, CEO, Prosperity Goldfields Corp. (PPG). "Nunavut is still finding its feet in the mining space. The permitting requirements and turnaround time for actually getting the permits are slower there, which might be function of the difficulty in finding people up there to do the administrative work that is necessary for this industry."

Beyond the general issues of overstretched regulators and waiting times, more specific issues have also arisen. Steve Potts, vice president of exploration, Commander Resources Ltd., for example, discusses water licensing. "Dealing with water license regulations, as part of your land use permitting, can be challenging. Nunavut's permitting is a bit more onerous than Yukon's, because it follows the Northwest Territories', which is based on a federal system."

The territory will soon be introducing a more streamlined regulatory system, something that many will welcome. "There will be one clear land claim-based regulatory system in Nunavut when the proposed Nunavut Planning and Project Assessment Act is approved. Nunavut has a simpler situation to the Northwest Territories; it has one territorial government and Inuit people with a common language and culture," said John Donihee, barrister and solicitor with McLennan Ross. •

# Vast Spaces, Vast Potential: Mineral- by-Mineral Guide to Nunavut

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"All gold deposits currently being explored or developed in Nunavut are Archean lode gold shear zone type gold deposits, and compare favourably with any other area globally. Due to Nunavut's logistical challenges and associated cost, we can only develop the most attractive deposits. For example 1 million ounce deposits are rare. Based on TSX-V data there are only 13 listed companies with 43-101 compliant resources with approximately 2 million ounces. North Country is one of those and has the highest grade of 13. We are also listed in the 31st spot of the top 50 ranked undeveloped 1 million ounce deposits by grade in the world according to 'Natural Resource Holdings'."

*- John Williamson, CEO, President and Director,  
North Country Gold Corp.*

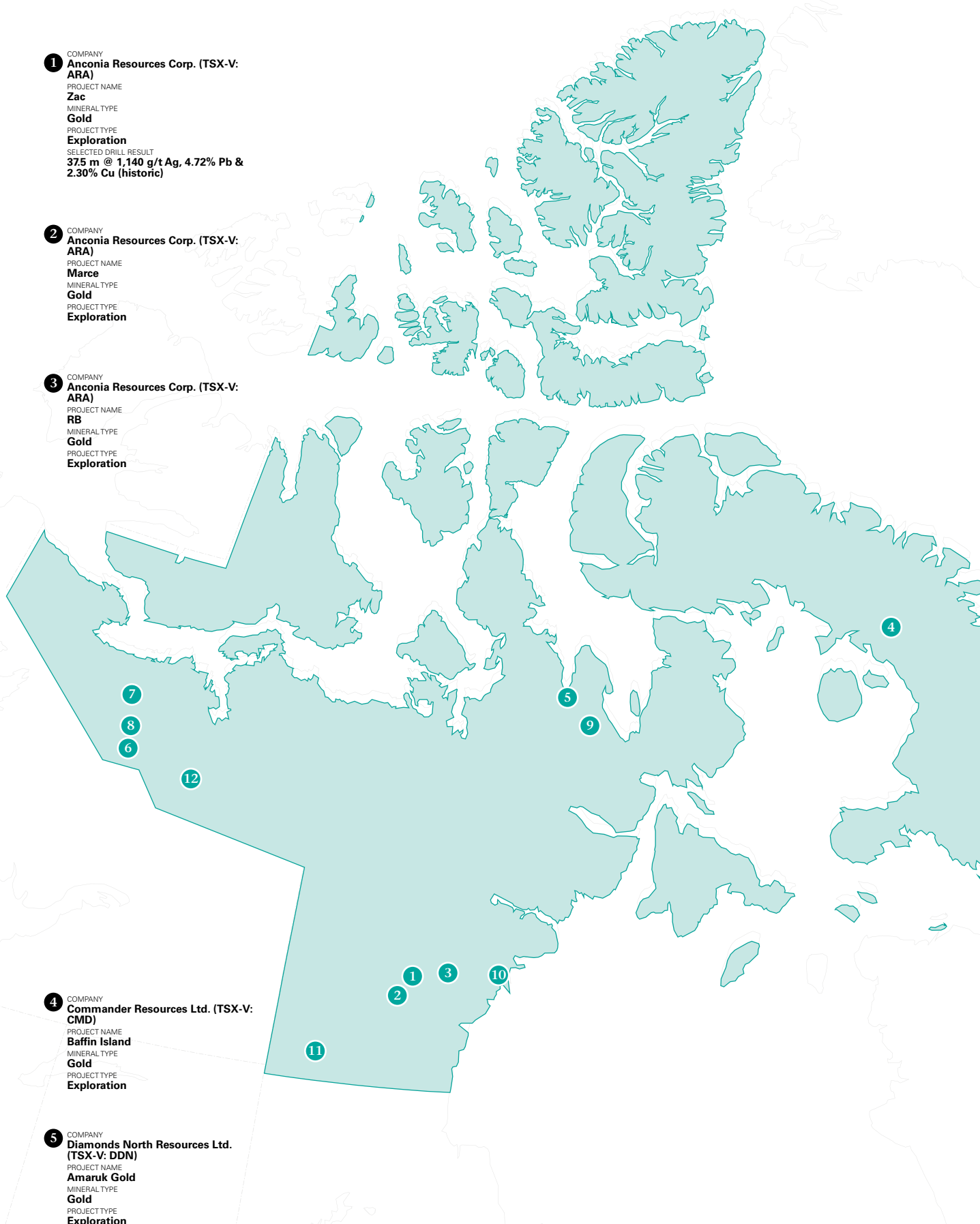
**1** COMPANY  
**Anconia Resources Corp. (TSX-V:  
ARA)**  
PROJECT NAME  
**Zac**  
MINERAL TYPE  
**Gold**  
PROJECT TYPE  
**Exploration**  
SELECTED DRILL RESULT  
**375 m @ 1,140 g/t Ag, 4.72% Pb &  
2.30% Cu (historic)**

**2** COMPANY  
**Anconia Resources Corp. (TSX-V:  
ARA)**  
PROJECT NAME  
**Marce**  
MINERAL TYPE  
**Gold**  
PROJECT TYPE  
**Exploration**

**3** COMPANY  
**Anconia Resources Corp. (TSX-V:  
ARA)**  
PROJECT NAME  
**RB**  
MINERAL TYPE  
**Gold**  
PROJECT TYPE  
**Exploration**

**4** COMPANY  
**Commander Resources Ltd. (TSX-V:  
CMD)**  
PROJECT NAME  
**Baffin Island**  
MINERAL TYPE  
**Gold**  
PROJECT TYPE  
**Exploration**

**5** COMPANY  
**Diamonds North Resources Ltd.  
(TSX-V: DDN)**  
PROJECT NAME  
**Amaruk Gold**  
MINERAL TYPE  
**Gold**  
PROJECT TYPE  
**Exploration**



# Gold

**6** COMPANY  
**Elgin Mining Inc. (TSX-V: ELG)**  
PROJECT NAME  
**Lupin**  
MINERAL TYPE  
**Gold**  
PROJECT TYPE  
**Exploration**  
PROBABLE RESERVES  
**1.11 million mt @ 11.32 g/t Au**  
PRODUCTION (2011)  
**(base case assuming previous mining activity was properly recorded)**

**7** COMPANY  
**Elgin Mining Inc. (TSX-V: ELG)**  
PROJECT NAME  
**Ulu**  
MINERAL TYPE  
**Gold**  
PROJECT TYPE  
**Exploration**  
PROBABLE RESERVES  
**418,000 mt @ 10.61 g/t Au**  
PRODUCTION (2011)  
**2.5 g/t Au**

**8** COMPANY  
**Leeward Capital Corp. (TSX-V: LWC)**  
PROJECT NAME  
**Pistol Lake**  
MINERAL TYPE  
**Gold**  
PROJECT TYPE  
**Exploration**

**9** COMPANY  
**North Country Gold Corp. (TSX-V: NCG)**  
PROJECT NAME  
**Three Bluffs**  
MINERAL TYPE  
**Gold**  
PROJECT TYPE  
**Exploration**  
PROBABLE RESERVES  
**4.53 million mt @ 5.69 g/t Au**  
PRODUCTION (2011)  
**2.5 g/t Au (underground) & 1.35 g/t Au (open pit)**

**10** COMPANY  
**NorthQuest Ltd. (TSX-V: NQ)**  
PROJECT NAME  
**Pistol Bay**  
MINERAL TYPE  
**Gold**  
PROJECT TYPE  
**Exploration**  
PROBABLE RESERVES  
**4.53 million mt @ 5.69 g/t Au**  
PRODUCTION (2011)  
**2.5 g/t Au (underground) & 1.35 g/t Au (open pit)**

**11** COMPANY  
**Prosperity Goldfields Corp. (TSX-V: PPG)**  
PROJECT NAME  
**Kiyuk Lake**  
MINERAL TYPE  
**Gold**  
PROJECT TYPE  
**Exploration**

**12** COMPANY  
**Sabina Gold & Silver Corp. (TSX: SBB)**  
PROJECT NAME  
**Black River**  
MINERAL TYPE  
**Gold**  
PROJECT TYPE  
**Exploration**  
PROBABLE RESERVES  
**9.332 million mt @ 5.61 g/t Au**  
PRODUCTION (2011)  
**various**

The most active commodity in Nunavut, there are no less than five advanced gold exploration projects currently underway in the territory, as well as Nunavut's only active mine. "All gold deposits currently being explored or developed in Nunavut are Archean lode gold sheer zone type gold deposits, and compare favorably with any other area globally," said John Williamson, president, CEO and director, North Country Gold Corp.

Agnico-Eagle's Meadowbank gold mine, located near Baker Lake, has in many ways acted as a testing ground for those considering mineral development in Nunavut. With a mine life expected to take it to 2017, the company's largest gold producer has been open since 2010 and has already seen a significant write-down in 2012, driven largely by high operating costs. With gold reserves of 2.2 million oz at 24 million mt at 2.8g/mt the mine is dependent on sealift by barge from Hudson Bay to Baker Lake for the transport of bulk supplies and heavy equipment and already contributes 15% of the territory's GDP. The mine is estimated to produce 295,000 oz of gold in 2012, averaging 308,000 oz/y in 2013 and 2014. The Meliadine gold project, also under the Agnico-Eagle umbrella, remains in its early stages.

The other key gold project that exists in the territory is Newmont Mining Corp.'s Hope Bay project. In 2012, the company announced it was putting the project on hold while it is under review. Though there is currently care and maintenance funding for the site, the project was not included in Newmont's 2017 strategic growth plan and there will likely be no advancement on this project in the near term.

Adrian Fleming, CEO of Prosperity Goldfields understands the challenges present working in the remote regions of the territory. Speaking on the company's Kiyuk Lake project, he said: "Unfortunately, in Nunavut there are no roads,

so we are restricted to going in by plane. This being more remote, we are going to need more total ounces and better grade to make it a mine here." Prosperity Goldfields expect at least two more years of drilling to define their resource.

There are three other advanced gold projects currently active in Nunavut: Sabina Gold and Silver Corp.'s Back River project, North Country Gold's Committee Bay and Elgin Mining's Ulu mine. North Country Gold's flagship project, Three Bluffs, located in the Committee Bay greenstone belt, has been the exclusive focus of the company for the past two years.

Developed from a grassroots find to its current status of 1.5 million oz gold at an average grade of 5.31 gold g/mt., president, CEO and director of North Country Gold John Williamson is understandably proud of his company's holding. "Outside of Meadowbank and Meliadine gold deposits, Three Bluffs is arguably the most advanced gold project in the eastern Arctic. The threshold for majors to be interested in a Nunavut gold project is when the 2 million oz mark is eclipsed; we anticipate achieving this in 2012 or 2013, at which time we will actively look at other major participants, or decide to go it alone."

One of the territory's most unique projects, Patrick Downey, president and CEO of Elgin Mining discussed the resurrection of the historic Ulu gold project. "The Lupin mine was originally owned by Kinross and pioneered many areas such as ice road haulage, and narrow underground mining.

A very famous Canadian mine, it ran for 21 years and produced almost 3.5 million oz of gold, closing only due to the price of gold at the time. The original owner, Kinross Gold, left the mine infrastructure and mills in place, as it was believed the price of gold would again increase."

Purchasing both the Lupin gold mine and Ulu gold project in 2011, Elgin commenced drilling in November 2011 with the aid of 3.3 million liters of fuel remaining on site from previous mining activity. "A zone near the existing underground infrastructure and the first phase

returned excellent results. Elgin is now actively starting on a plan to commence production in 2015," said Downey.

Sabina Gold and Silver were actively drilling at their Black River project in summer 2012, with the pre-feasibility study anticipated to be completed in mid-2013. Pending positive results, a full bankable feasibility study would be completed in 2014, according to Rob Pease, president and CEO.

Without such advanced projects, it would be tempting to argue that the high operating costs of the region make early-stage exploration from smaller juniors slightly less than feasible. Yet the presence of such juniors renders this assumption obviously fallacious.

"In Nunavut there are no road systems outside towns, except those put in for specific reasons, so for 95% of the territory you are operating a fly program," said Jason Brewster, CEO of early-stage explorer Anconia Resources Corp., acknowledging the difficulties of the ter-

ritory.

However, for Brewster the opportunities that Nunavut presents more than outweigh the costs of operating in the territory. "Exploration costs in Nunavut are only perhaps 50% higher than in northern Ontario, in a place like the James Bay lowlands... There are not many brand new exploration plays to be found in the south, but in Nunavut they are all over the place, and lots of people are sniffing around... the opportunities up there are incredible," he said.

The upside potential of backing an exploration project that could pan out into a whole new camp, not just a single mine, also helps win investment, argues Brewster. "You cannot discount the romance aspect of being able to go out, stake ground and talk about a story that has not been kicking around the market for 50 years.

"We went public last summer with the MARCE and ZAC properties. These are base metal assets with significant geo-

physics and surface occurrences, both previously held by Comaplex before reverting back to prospectors who knew us personally. The ZAC property had been drilled in the past with some success; the MARCE property never had, but it did have some fairly stunning surface sampling results, up to the range of about 20% zinc, 8% copper and 800 g of silver. The two properties are 18 km apart from showing to showing, and as VMS targets often occur in groups we flew some geophysics to see if there was a trend between them. The results were encouraging enough for us to stake all the ground; we now have a land position of around 107 sq km. Last year we returned to perform surface work, primarily on the MARCE, and significantly improved Comaplex numbers: we got 10.6% copper, 34% zinc, 19.2 g of gold and 2,100 g of silver. This level of gold and silver is not typical of VMS deposits, so there may have been a secondary event there," said Brewster. •





# Interview with Steve Potts

VP EXPLORATION, COMMANDER RESOURCES LTD.

## Can you briefly introduce us to Commander Resources?

In 2002, Commander Resources Ltd. evolved from Major General Resources, a company that traded publicly since 1990. With its lengthy history, it already had a large portfolio of projects covering several commodities. The projects are spread across Canada, which involves extensive strategic work for a junior company regarding budgeting and maximizing shareholder value. Commander's philosophy is to generate projects through land acquisition and grassroots exploration, and form strategic partnerships to advance those projects.

An example is our Baffin Island Gold Property, which was subject to a Joint Venture partnership with AngloGold Ashanti from 2009 until spring 2012. It had been the Company's flagship since 2001, when the initial land package was first acquired by BHP. The Agreement enabled us to rapidly accelerate exploration and development of our project which covers a regionally extensive and exciting gold district in the Nunavut frontier. During our JV partnership, over \$10 million was spent by AngloGold in advancing the project. In 2008 the Storm Copper property, located on Somerset Island, Nunavut, was brought into our portfolio. It is a large copper-zinc showing that Cominco had discovered in the 1990s. We completed \$1 million of work there in 2011 and it is now joint ventured with a soon to be listed company. Now that the Baffin Island project has returned to us, we are reforming our strategy on how we can run such a project in the current financial climate.

## Have you found interest in a new joint venture partnership?

We have approached the majors, but it is hard to find enthusiasm for any grassroots projects right now. Newmont is re-evaluating its development options for its Hope Bay project, and Agnico Eagle's Meadowbank mine was struggling earlier this year to make a profit. Agnico Eagle's appetite for the north remains strong with their

commitment to the Meliadine project. To the north of us, the ArcelorMittal owned Mary River Iron ore mine is moving toward production. The Baffin Island project has the right geology, and we have spent over \$20 million over ten years. We are looking for a partner who understands the nature of working in the Arctic. The partner has to be aware of the logistical and cost issues involved in working in the far North. We have approached several companies who have shown interest and talks are still underway. We remain open to expressions of interest.

## Tell us about your unique Glenmorangie project in the Yukon.

Glenmorangie is located in SE Yukon, just north of Northern Tiger's 3 Ace gold prospect, which spiked interest in the area in 2010. We started work last summer and carried out a small field season this year. Interest in the Yukon was fired up

two years ago on the back of very exciting discoveries in the White Gold district, although it has slowed down this year in concert with the rest of the junior market. Like others, we have geared back our budget to accommodate the markets. We had planned to fly an airborne survey this year, hoping to take Glenmorangie to a drill-ready stage, but decided to defer it to next year. This area of southeast Yukon is underexplored for gold and is known for its tungsten potential, with the Cantung Mine located only 7 km to the east. The region is thought to be an extension of the Tintina gold belt which hosts several Cretaceous aged intrusion related gold deposits. During our preliminary investigations we have discovered sheared intrusives on the property with associated mineralized gold veins. This opens the possibility for intrusion and structurally hosted gold being found on the property. To date, we have found two anomalous zones, and with this summer's field program discovering up to 1,050 ppb gold in soils, confirms the strength of these finds. A new neighbor to the south of us has just completed a drill program on one of these intrusions with success. This adds to the case that this area is under-explored and we are excited about the potential of this property. •

Commander Resources Ltd. is a Canada focused gold and copper exploration company with a seasoned management team experienced in northern projects



**BAFFIN ISLAND GOLD PROJECT - Available for Option**

*CMD has been actively exploring the Baffin Island gold belt since 2003. 14 gold prospects have been discovered with three drilled to date. Our latest discovery, the Kanosak prospect returned values of up to 1,344 g/t Au in grab samples and a 3D IP survey was completed in 2011. The Kanosak prospect is now drill ready. A 30 man camp and fuel supply is in place with logistical support available in Iqaluit.*

For more information, contact Steve Potts or Bernie Kahler  
[www.commanderresources.com](http://www.commanderresources.com) Toll Free: 1-800-667-7866

# Interview with Patrick Downey

PRESIDENT AND CEO, ELGIN MINING INC.

## Can you give a brief history of the Lupin Gold Mine with Elgin Mining Incorporated?

The Lupin mine was originally owned by Kinross and pioneered many areas such as ice road haulage, and narrow underground mining. A very famous, Canadian mine, it ran for 21 years, produced almost 3.5 million oz of gold, closing only due to the price of gold at the time. The original owner Kinross Gold left the mine infrastructure and mills in place, as it was believed the price of gold would again increase. Elgin Mining purchased both the Lupin Gold Mine and Ulu gold project in 2011 and I was appointed President at the same time. Elgin believed this was a real opportunity to revisit a historic mine with excellent potential. Furthermore, the best place to find more gold is where gold has already been discovered and I believe the mine still has lots of life.

## What are the key steps and time-line to achieve production at Lupin and what remaining mine life do we anticipate at the Lupin mine?

Elgin Mining's first priority was to look at the existing data to determine if there were adequate resources and reserves to take the mine into production again; the outcome was positive and it appears to be low-risk with a \$50 million capex to achieve our goal. Elgin Mining applied for drilling permits and commenced drilling in November 2011 with the aid of 3.3 million liters of fuel remaining on site from previous mining activity. A zone near the existing underground infrastructure and the first phase returned excellent results. Elgin is now actively starting on a plan to commence production in 2015. This was further enhanced by the recent acquisition of a Gold ore with a producing mine, giving us a cash flow, Lupin's production was rescheduled for 2014. En route to production in 2012 we will conduct an underground

workings assessment, and in 2013 carry out a full-mill rehabilitation. Lupin also has the advantage of ice-road access; these roads were pioneered by the late John Zigarlick, Jr. Depending upon exploration success and the price of gold remaining strong, the mine-life for Lupin should be 10 years.

## What was the significance of Elgin moving from TSXV to TSX and how will this affect Lupin; and will you be looking in Canada's north or globally for new assets?

Graduating from the TSXV to TSX exposes Elgin Mining to a much broader funding audience, and from a corporate governance viewpoint procedures are more simplified. Lupin, Bjorkdal, and Ulu will likely not be our only assets in the future; and our TSX listing will assist our future growth plans. Elgin's strategy is to remain low-risk and will generally stay in the US and Canada, plus specific jurisdictions in Europe, but is constantly keeping an eye out for the right projects.

## Famous for its diamonds, do you feel investors are aware of the gold and other resource potential of Nunavut?

In Nunavut there is world-class resource potential, but it has to be understood by investors that this is a remote area with a limited time frame each year in which to explore. Whatever deposit is found it is essential that it has the grade and size to support the logistics and capital required to develop the deposit.

## Planning to move the Lupin Mine into production, have you found there is a sufficient pool of skilled labor to tap in to or other challenges facing you in Nunavut?

When finding a resource with development potential, companies need certainty that any agreements with the various Inuit associations reflect the risks and capital that are associated with an ex-

ploration project; arguably, there needs to be more discussions and an understanding of this. Nunavut is sparsely populated, but the local communities are generally very supportive of mining. However, even with training, there is an insufficient population size to satisfy the labor needs of mining companies; Elgin's aim is to maximize its number of local employees, and provide ongoing training by working with the local communities and community leaders in the areas. One key area is to help develop sustainable skill sets that can be utilized in other areas after any mine has closed.

**Can you outline some of the CSR initiatives you are engaged in or planning for Nunavut?**

A mine cannot be developed in a district

without understanding what it means to the local communities. Elgin Mining and its fellow mining fraternity strive to conduct business in a manner with least effect and maximum benefit to the local communities. Arguably, mining companies should look beyond the usual CSR initiatives, such as sponsorship, and look at CSR initiatives that are sustainable having a positive impact on the local community. For example, instead of shipping samples south to British Columbia or Ontario setting up an environmental laboratory in Cambridge Bay or Kugluktuk to service the mining industry in the area will have a long-term positive impact.

**What is your vision for Elgin Mining and the Lupin Gold mine?**

Over the next five years I want to create a strong viable mid-tier gold mining Company by adopting a low risk strategy with maximum return to shareholders. Looking forward, gold will remain a strong alternate to currencies such as the US dollar and the Euro and should continue to be very viable. However, my job as CEO is not to predict the price of gold, but to ensure that our input costs to produce an ounce of gold are minimized and therefore profitable enabling us to execute our business plan. In summary, Elgin Mining is very excited to be in Nunavut with the potential re-start of the famous Lupin Gold Mine. We are also excited to create significant skilled jobs for and enjoy good rapport with the local Nunavut community as Nunavut is a spectacular place to work in. •



## PRODUCTION, DEVELOPMENT AND GROWTH



Elgin Mining is a Canadian based company focused on production at the Bjorkdal Gold Mine in Sweden, which has produced 1,060,000 ounces in the last 24 years, and the exploration and development of the Lupin gold mine and Ulu gold project, both located in Nunavut Territory, Canada. In addition, Elgin's portfolio includes a 35% interest in Auracle Resources, which is exploring the Mexican Hat property in Arizona, and an exclusive right and option to earn a 60% interest in Lincoln Mining's Oro Cruz (California) and La Bufa (Mexico) gold projects. Elgin Mining also selectively reviews opportunities to add advanced stage development projects to its portfolio. The Company has a strong balance sheet, generates significant cash flow from gold sales, and remains un-hedged. Elgin Mining's shares are traded on the Toronto Stock Exchange under the symbol ELG.

**TSX : ELG**

**Elgin Mining Inc.** #201 – 750 West Pender Street Vancouver, BC V6C 2T8  
**Tel:** 604-682-3366 **Email:** info@elginmining.com **Website:** www.elginmining.com

# Interview with Adrian Fleming

CEO, PROSPERITY GOLDFIELDS CORP. (PPG)

## Could you give us a brief introduction to Prosperity Goldfields and your flagship project, Kiyuk Lake in Nunavut?

In 2011 I was again exploring for gold in the Yukon with a Company called Smash Minerals. As we completed the 2011 summer's program, I started looking for another asset to add to the Smash portfolio. Any junior company in the exploration space needs to have a progression of projects and I was seeking other options for the company. Smash Minerals had completed two rounds of capital-raising in 2011, so we had a significant cash. David and Eric Coffin, of the Hard Rock News Analyst, then introduced me to this property in Nunavut, Kiyuk Lake. I liked the look of it. So we merged Smash Minerals with Prosperity Goldfields to secure the Nunavut gold property. We have now in 2011 completed a 12-hole drill program in the spring and a summer exploration program. We are very excited about the Kiyuk Property as the initial drilling produced results of 61.5 m at 3.3 g/t Au, including 15.0 m at 6.7 g/t Au from Core Drilling at the Rusty Target. This project is reasonably remote and we are restricted to going in by plane or winter roads, this means we will need more total ounces and a better grade to make it a mine. I believe we will need

to define between 2 to 3 million ounces, with a grade of 3 grams or better. We have good indications thus far. To get to the point where we have a substantial resource, assuming our positive continued drilling results, we will need 2 to 3 more years of vigorous drilling and work.

## We understand that with Underworld Resources your drill discovery in 2008 in the Yukon led to the staking rush at the White Gold District. In your opinion, how is Yukon a unique mining destination?

Prior to Shawn Ryan's work there had been no systematic gold exploration in what is now known as the White Gold District, searching for the source of the placer mines. There are now two new gold discoveries for which Shawn Ryan did the initial work. He and his wife and partner Cathy Wood should be credited for their pioneering sampling which led to drill discoveries at Golden Saddle in 2008 and Kaminak's Coffee project in 2010. There was a lot of hype in 2009 as a result of the successful drilling by Underworld Resources. Underworld was acquired by Kinross in 2010. With Kaminak making another nice discovery at their Coffee project the White Gold machine was throbbing in 2010 and many investors focused on Yukon. Following this though, nobody made another good discovery in 2011 so from the perspective of the broking community, the Yukon has been a disappointment and investors have lost quite a bit of money. There are now a number of other juniors drilling in this region though and I believe somebody will make a hit and restore faith in area. The Yukon Government has done a great job in promoting the Territory as an exploration destination. A lot of the credit should go to them for publicizing and promoting the Yukon as a mining-friendly jurisdiction.

## Can you compare the operational climates of Nunavut and the Yukon?

Nunavut is still finding its feet in the mining space; the permitting requirements and turnaround time for getting the permits are slower there, which might be function of the difficulty in finding people to go to the north to do the administrative work that is necessary for this industry. That being said, they have made great strides in the last 10 years and have one operating gold mine at this point and are currently permitting others. Yukon is older and more experienced, with a deeper mineral history. It is easier to attract labor to Yukon, and they have more money to spend on promoting the industry.

## Do you believe that investors are currently more keen to invest in operating mines or advanced projects?

Let's take Underworld Resources and Smash Minerals as examples. Underworld was a greenfields gold discovery by a good management group. So in 2011 we were able to finance Smash Minerals to do early stage exploration with 8 million shares at \$0.80 and it was oversubscribed. Today, there would be no chance of doing that. The market in 12 months has gone from quite buoyant for the early stage projects to excluding them from the investment sightline. Many juniors by the end of 2012 are likely to find their treasuries empty. •



Defining Nunavut's  
**New Gold Discovery**

- Summer exploration discovered five new gold zones
- 2012 drill intercept of 61.5 m at 3.3 g/t at Rusty target
- Nunavut summer exploration results justify aggressive 2012 drilling



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www.prosperitygoldfields.com

# Interview with Jason Brewster

CEO, ANCONIA RESOURCES CORP.

## Could you provide us with an overview of Anconia Resources and its Nunavut assets?

Anconia Resources has been around for about a year and four months; it was formed through an RTO of an old exploration company. We went public last summer with the MARCE and ZAC properties. These are base metal assets with significant geophysics and surface occurrences, both previously held by Comaplex before reverting back to prospectors who knew us personally. The ZAC had been drilled in the past with some success; the MARCE never had, but it did have some fairly stunning surface sampling results, up to the range of about 20% zinc, 8% copper and 800 g of silver. The two properties are 18 km apart from showing to showing, and as VMS targets often occur in groups we flew some geophysics to see if there was a trend between them. The results were encouraging enough for us to stake all the ground; we now have a land position of around 107 sq km. Last year we returned to perform surface work, primarily on the MARCE, and significantly improved Comaplex numbers: we got 10.6% copper, 34% zinc, 19.2 g of gold and 2100 g of silver. This level of gold and silver is not typical of VMS deposits, so there may have been a secondary event there.

I identified our other Nunavut asset, the RB property, by combing through government archives. It had been held in the 1980s by Noble Peak Resources, who got significant numbers on surface and a little bit of joy in drilling – the most significant hole had eight meters of 12.8 g/t gold, and they were sampling up to 114 g/t gold over 1 meter in a trench on surface. The markets fell apart in 1987, however, and 1988 was their last season. We staked the land which had become free in the ensuing years. So far on the RB property we have completed a small initial reconnaissance program last year, during which 72 samples were taken. Almost half came back with greater than

2g gold, and some were really significant: we re-assayed one as 196g. The gold occurs in faults and shears over a strike length of about 1 km, possibly mobilized by a significant structural event, and we know there is copper and zinc on the property, but it is really early days. On top of this, Anconia Resources has its Melchett Lake project in Ontario, another VMS target where significant copper and zinc has been sampled in previous drilling.

## What is your experience of the legislative environment?

There is a lot of permitting to be done, but unlike other jurisdictions, Nunavut is very well organized. What you have to do is not a mystery, and the agencies are very helpful because they know there is a lot of paperwork. So far we have not had to deal with any federal permitting,

only territorial and Inuit; our MARCE project is on Inuit-owned surface ground. I worked in Ontario's Ring of Fire before, and the difficulty there is the lack of settled land claims, which means you do not know who you are dealing with. It can get very messy, very quickly.

## Do you feel investor's 'get' Nunavut?

I think you will see more investment and exploration in Nunavut: it has been overlooked in the past due to being so remote. There are not many great exploration opportunities to be found around Southern Ontario these days, whereas the opportunities up there are incredible. You can just fly around in a helicopter and say, 'Oh, there's some good ground right there!' just by looking at it. Exploration costs in Nunavut are only perhaps 50% higher than in Northern Ontario, in a place like the James Bay lowlands, and you can't discount the romance aspect of being able to go out, stake ground and talk about a story that hasn't been kicking around the market for 50 years. There aren't many brand new exploration plays to be found in the south, but in Nunavut they are all over the place, and lots of people are sniffing around. •

**Magnifying Value Through Discovery**

Nunavut Canada

**Anconia**  
RESOURCES CORP.

ara-tsx.v www.anconia.ca

**1** COMPANY  
**Areva Resources Canada Inc.**  
PROJECT NAME  
**Kiggavik**  
MINERAL TYPE  
**Uranium**  
PROJECT TYPE  
**Exploration**

**2** COMPANY  
**Bluestone Resources Inc. (TSX-V: BSR)**  
PROJECT NAME  
**Grail**  
MINERAL TYPE  
**Diamonds**  
PROJECT TYPE  
**Exploration**

**3** COMPANY  
**Diamonds North Resources Ltd. (TSX-V: DDN)**  
PROJECT NAME  
**Amaruk**  
MINERAL TYPE  
**Diamonds**  
PROJECT TYPE  
**Exploration**

**4** COMPANY  
**Forum Uranium Corp. (TSX-V: FDC)**  
PROJECT NAME  
**North Thelon**  
MINERAL TYPE  
**Uranium**  
PROJECT TYPE  
**Exploration**  
SELECTED DRILL RESULT  
**12.5 metres @ 20 ppm U, 102 m @ 512 ppm B & 54 m @ 115 ppm Ni**

**5** COMPANY  
**Kivalliq Energy Corp. (TSX-V: KIV)**  
PROJECT NAME  
**Angilak**  
MINERAL TYPE  
**Uranium**  
PROJECT TYPE  
**Exploration**  
NI 43-101 INFERRED RESOURCE  
**1,779 million mt @ 0.69% U3O8, 16.3 g/t Ag, 0.16% Mo & 0.25% Cu**  
CUT-OFF GRADE  
**0.2% U3O8**

**6** COMPANY  
**Pacific Ridge Exploration Ltd. (TSX-V: PEX)**  
PROJECT NAME  
**Baker Basin**  
MINERAL TYPE  
**Uranium**  
PROJECT TYPE  
**Exploration**  
SELECTED DRILL RESULT  
**17.3 m @ 0.3% U3O8**

**7** COMPANY  
**Peregrine Diamonds Ltd. (TSX: PGD)**  
PROJECT NAME  
**Nanuq**  
MINERAL TYPE  
**Diamonds**  
PROJECT TYPE  
**Exploration**  
SELECTED DRILL RESULT  
**1,008 kg @ 0.61 diamonds/kg**

**8** COMPANY  
**Peregrine Diamonds Ltd. (TSX: PGD)**  
PROJECT NAME  
**Qilak**  
MINERAL TYPE  
**Diamonds**  
PROJECT TYPE  
**Exploration**  
SELECTED DRILL RESULT  
**871.5 kg @ 205 total diamonds**



# Uranium Diamonds

**9** COMPANY  
**Peregrine Diamonds Ltd. (TSX: PGD) & Bluestone Resource Inc. (TSX-V: IME)**

PROJECT NAME  
**Nanuq North**  
MINERAL TYPE  
**Diamonds**  
PROJECT TYPE  
**Exploration**  
SELECTED DRILL RESULT  
**64 m @ 0.89 diamonds/kg**

**10** COMPANY  
**Peregrine Diamonds Ltd. (TSX: PGD) & De Beers**

PROJECT NAME  
**Chidliak**  
MINERAL TYPE  
**Diamonds**  
PROJECT TYPE  
**Exploration**  
SELECTED DRILL RESULT  
**393.1 kg @ 251 total diamonds**

**11** COMPANY  
**Shear Diamonds Ltd. (TSX-V: SRM)**

PROJECT NAME  
**Jericho**  
MINERAL TYPE  
**Diamonds**  
PROJECT TYPE  
**Exploration**  
NI 43-101 INFERRED RESOURCE  
**1.13 million carats**  
NI 43-101 INFERRED RESOURCE  
**1.88 million carats**

**12** COMPANY  
**Shear Diamonds Ltd. (TSX-V: SRM)**

PROJECT NAME  
**North Slave**  
MINERAL TYPE  
**Diamonds**  
PROJECT TYPE  
**Exploration**

**13** COMPANY  
**Shear Diamonds Ltd. (TSX-V: SRM) & Stornoway Diamonds Corp. (TSX: SYW)**

PROJECT NAME  
**Churchill**  
MINERAL TYPE  
**Diamonds**  
PROJECT TYPE  
**Exploration**  
SELECTED DRILL RESULT  
**356 mt processed @ 337 carats**

**14** COMPANY  
**Stornoway Diamonds Corp. (TSX: SYW)**

PROJECT NAME  
**Qilalugaq**  
MINERAL TYPE  
**Diamonds**  
PROJECT TYPE  
**Exploration**  
NI 43-101 INFERRED RESOURCE  
**48.79 million mt @ 53.6 carats/hundred tonnes**

**15** COMPANY  
**Stornoway Diamonds Corp. (TSX: SYW)**

PROJECT NAME  
**Aviat**  
MINERAL TYPE  
**Diamonds**  
PROJECT TYPE  
**Exploration**  
SELECTED DRILL RESULT  
**926.5 kg @ 677 total diamonds**

Urged by NTI in 2011 to review the uranium policy, in spring 2012 the government of Nunavut reaffirmed their uranium policy and clarified their support for responsible development of the commodity. The NIRB will be the lead regulatory agency to review any uranium development submissions.

International uranium producer Areva, which is already in production at its McClean Lake site in Saskatchewan, is the most advanced of the three uranium projects currently underway in Nunavut. The Kiggavik project currently has its environmental impact assessment underway and set to be completed by 2014. "Following the final development decision, obtaining licenses and permits, we aim to begin construction in 2017 or 2018, which we expect to last for three or four years. Operations themselves should last approximately 14 years given current resource estimates, and then there will be a five to 10 year period of decommissioning. In parallel, we are continuing exploration, anticipating that the resources at the site could extend the mine life to 25 years," said Barry McCallum, manager of Nunavut Affairs, Areva.

Turqavik-Aberdeen is a new, 100%-owned exploration project located approximately 85 km west of Baker Lake. Owned by international uranium producer Cameco, it is still in early stage exploration and neighbors both the Kiggavik and Thelon Basin projects.

The location of these projects makes mining junior Forum Uranium's Thelon Basin property particularly attractive to investors. "The investment in Nunavut is in such a perfect, strategic location. Between [Forum, Areva and Cameco], we have essentially acquired the whole prospective geological belt in the area, where I believe the first uranium processing facility outside of Athabasca will be built. The Athabasca Basin is certainly very unique in its high grades, and the Thelon Basin is probably the best equivalent to Athabasca in the world," said Richard Mazur, president and CEO, Forum Uranium.

With the government's recent affirmation of support for the uranium industry, as well as Areva's continued progress and development, uranium will be one commodity to keep an eye on in Nunavut. •

Nunavut has two advanced diamond exploration projects that, along with a few other juniors, could see a strong focus shift on to them as the neighboring Snap Lake and Diavik mines are set to wind down over the next decade.

Peregrine Diamonds may soon be leading the way. Their flagship Chidliak project was discovered in 2007, in the Nanuq diamond district on South Baffin Island. "Since [2007] we have found 61 kimberlites at Chidliak and seven pipes have economic potential. Peregrine Diamonds is currently advancing this project towards development," said Brooke Clements, president of Peregrine Diamonds.

On September 5th 2012, Peregrine announced it had completed an option deal with De Beers where De Beers has the exclusive right, until December 31st 2013, to enter into an earn-in and joint venture agreement with Peregrine on a 50.1% De Beers to 49.9% Peregrine ownership basis. If a joint venture is formed, De Beers will undertake mineral exploration and development work potentially leading to the completion of a bankable feasibility study and, if warranted, the construction of a diamond mine.

Shear Diamond Ltd.'s Jericho mine in Nunavut has felt the commodity price crunch in the diamond market this year and has put their diamond mine, which functioned from 2006 to 2008, on hold only months after it restarted its operations. Citing weak world diamond prices, the company has said it will continue to look at diamond resources at Jericho's pit and other nearby properties.

Stornoway Diamond Corp., which has exploration activities at its Qilalugaq and Aviat projects, has opted to focus its current operations elsewhere, if only in the short term. Focusing instead on its Renard Diamond project, which the company is currently developing into a mine in Quebec, its Nunavut projects have taken a secondary focus. Explaining this decision, Matt Manson, president and CEO said,

"Nunavut is a very aspirational part of the world and its government is receptive to mining development, although its permitting regime is still evolving. The greatest challenge that the mining industry has

working in Nunavut and the Northwest Territories is cost control and human resources. We are still very keen on Nunavut as a diamond exploration destination [though]; once Renard is producing, development in Nunavut will follow.”

Commander Resources, though focused on gold and copper, has followed a similar suit. “It is incredibly expensive to work in Nunavut right now... Money goes a lot further in the South than in the North, where it can cost, for example, \$1 million just to put a camp in, and you have to organize a sealift to bring supplies. Logistics have easily made up a third of our expenses,” said Steve Potts, vice president of exploration, Commander Resources. Until diamond prices begin to increase, and infrastructure develops, it is likely that diamond activities in the territory will remain short of their full potential. •



**stornoway**  
DIAMOND CORPORATION

Building Québec's First Diamond Mine  
**The Renard Project**

**Corporate Headquarters in Montreal**  
1111, rue St-Charles Ouest | Bureau 400, Tour Ouest  
Longueuil, Québec J4K 5G4 | Tel: (450) 616-5555

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**stornoway**  
DIAMOND CORPORATION

swydiamonds  
stornowaydiamonds.com

**TSX: SWY**



# Interview with Matt Manson

CEO AND PRESIDENT, STORNOWAY DIAMOND CORP.

## Can you give a brief overview of Stornoway Diamonds' history in Nunavut?

Canada is elephant country for diamond discoveries and Stornoway Diamonds was founded in 2003 on the business model of exploring in the Northwest Territories and Nunavut for diamonds. Stornoway's Nunavut heritage is: the Aviat project on the Melville Peninsula, an early discovery; and the Qilalugaq project optioned from BHP Billiton Diamonds Inc. in 2006, with a 100% interest finalized in 2010. The Renard Diamond project in Quebec is our flagship asset, one that we are currently developing into a mine. Our projects in Nunavut have assumed a lower profile, but we are still very keen on Nunavut as a diamond exploration destination; once Renard is producing, development in Nunavut will follow.

## Can you outline some of the key facts and figures for your Qilalugaq project?

Qilalugaq has infrastructure nearby, being only 10 km from the coast and the town of Repulse Bay; the resource was originally discovered by BHP Billiton who initially acquired permits in 2001. BHP sourced, drilled, and carried out sampling, decided it was not of interest to them and auctioned the project to Stornoway. We then carried out further sampling and discovered more kimberlites in the clusters, mostly kimberlite dykes, and returned to the large kimberlites and started a resource estimation exercise producing an initial resource estimate of 26 million carats of diamonds down to about 200 m, at a total diamond content grade 54 cph; the mine grade would be a lower figure. Qilalugaq hosts a series of kimberlites, close to the surface therefore avoiding excessive stripping costs, which makes the project less expensive to develop and potentially more viable. The kimberlite we have the resource estimate on is called the Q 1-4, a large 14 ha classic kimberlite composed

of different zones.

One of the key elements of determining a diamond mineral reserve is to determine the value of the diamonds; currently, with the small sample of diamonds we have we can only imply the potential average value of the diamonds from the Q 1-4. There are some interesting fancy yellow diamonds in the sample; the Qilalugaq project is very big with a lot of diamonds, but on a world-scale has a modest grade. The diamond valuation could be one of a number of different things; if yellow diamonds become significant, the valuation could be quite high. A bulk sample of 1,000 ct and 2,000 ct of diamonds will have to be extracted to ascertain a meaningful measurement of the diamond value attribute; at Qilalugaq that will require taking between 2,000 mt to 5,000 mt ore, building a process plant and processing the ore, recovering the diamonds and valuing them; a \$10 million to \$20 million exercise. A costly exercise that would have to be repeated at Aviat; capital expenditure that currently we are not in a position to commit to, as we are focusing on Renard where in 2006/2007 we invested \$20 million to \$25 million securing the valuation sample.

## Is there a time line for securing the bulk sample for the valuation at Qilalugaq; and is there a similar resource and grade for another diamond deposit in Canada?

We are in the process of permitting a 1500 tonne mini-bulk sample at Qilalugaq that may proceed in 2013, but there is no time line on securing the larger bulk sample; it very much depends upon the progress at Renard. Currently, the strategy of the company is to invest capital in Renard but also to invest in grassroots projects where we have some potential for new discoveries. We are restricted on moving forward the Aviat and Qilalugaq projects as they require substantial in-

vestment. It is quite difficult to compare one diamond deposit to another; diamonds have an extra variable called the average price. Analogies of Qilalugaq can be found at the EKATI mine in the Northwest Territories where there are suites of kimberlites that have a variation of types of ore body, and at Fort a la Corne, Saskatchewan, containing very big kimberlites at low grades, 15 ct per 100 tonnes but with a high diamond price. Typically at Qilalugaq we are looking for a diamond price that will give an ore value of \$100/tonne with an average diamond price of \$200 per ct; this would make for a very exciting deposit.

## What have been the key challenges of exploration and general operations in Nunavut?

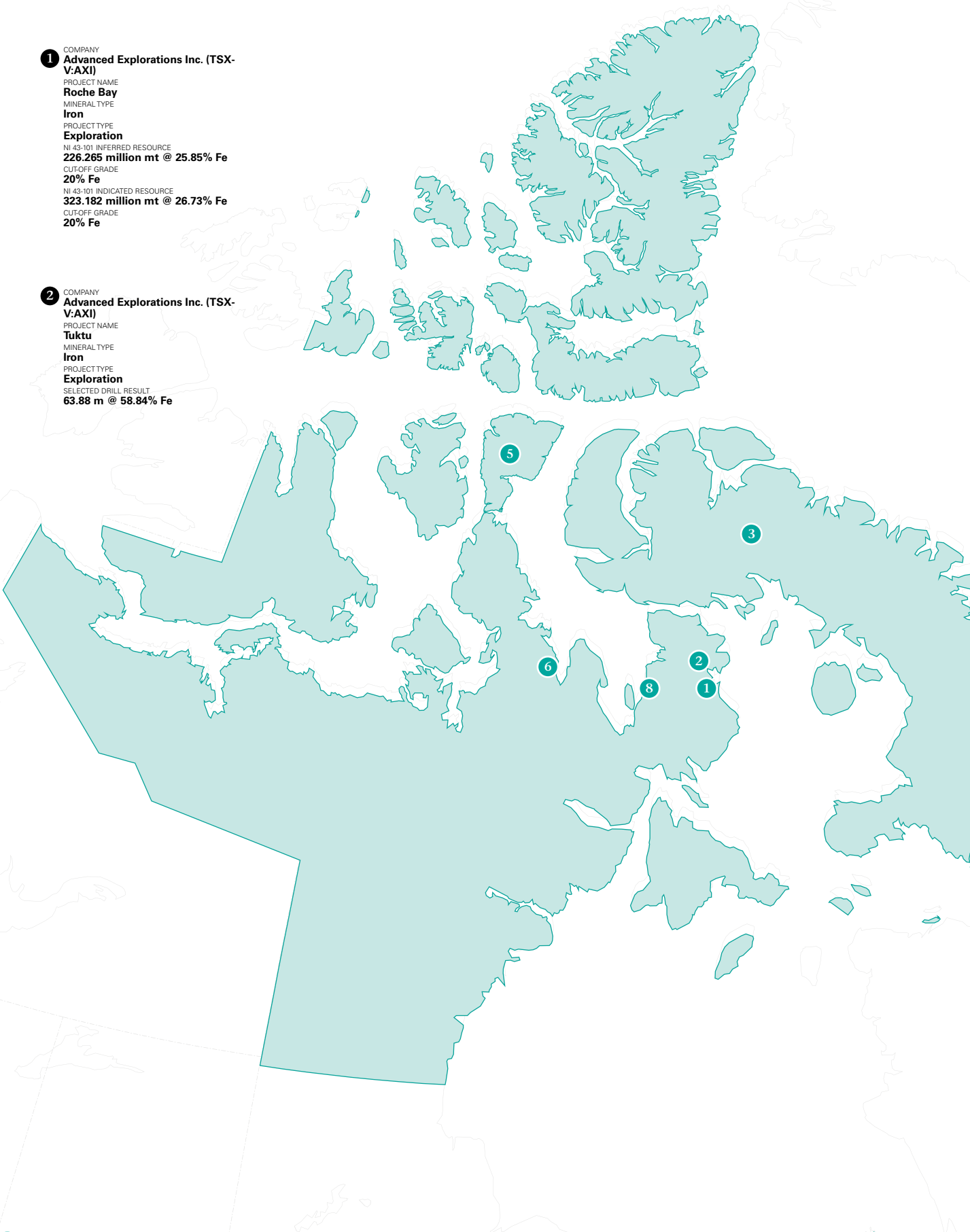
Arguably, there has always been more political uncertainty in the Northwest Territories for permitting and mine development; Nunavut is a very aspirational part of the world and its government is receptive to mining development although its permitting regime is still evolving. The greatest challenge that the mining industry has working in Nunavut and the Northwest Territories is cost control and human resources.

## Looking forward, what is Stornoway's commitment to the north and its communities?

After 12 months of negotiation, on 27 March 2012 Stornoway entered into Canada's most recently executed Impacts and Benefits Agreement between a resource company and an Aboriginal group, the Mecheshoo Agreement with the Cree Nation of Mistissini for the Renard project. Stornoway's credibility in terms of social engagement is very strong due to the way the IBA negotiations were conducted. We signed a confidentiality agreement with the Crees and showed them the financial model of the mine, making them insiders resulting in positive feedback from the Cree negotiators. The format and style of negotiation conducted with the Crees should be a model for all our future negotiation with local communities; a partnership of transparency, sharing information, with good governance on both sides ending in an amicable agreement. •

**1** COMPANY  
**Advanced Explorations Inc. (TSX-V:AXI)**  
PROJECT NAME  
**Roche Bay**  
MINERAL TYPE  
**Iron**  
PROJECT TYPE  
**Exploration**  
NI 43-101 INFERRED RESOURCE  
**226.265 million mt @ 25.85% Fe**  
CUTOFF GRADE  
**20% Fe**  
NI 43-101 INDICATED RESOURCE  
**323.182 million mt @ 26.73% Fe**  
CUTOFF GRADE  
**20% Fe**

**2** COMPANY  
**Advanced Explorations Inc. (TSX-V:AXI)**  
PROJECT NAME  
**Tuktu**  
MINERAL TYPE  
**Iron**  
PROJECT TYPE  
**Exploration**  
SELECTED DRILL RESULT  
**63.88 m @ 58.84% Fe**



# Iron and base metals

**3** COMPANY  
**Baffinland Iron Mines Corp.**  
PROJECT NAME  
**Mary River**  
MINERAL TYPE  
**Iron**  
PROJECT TYPE  
**Exploration**  
NI 43-101 INFERRED RESOURCE  
**213 million mt @ 66.9% Fe, 0.05% P, 0.43% S, 1.9% SiO<sub>2</sub> & 0.9% Al<sub>2</sub>O<sub>3</sub> (deposit no. 1 only)**  
CUT-OFF GRADE  
**57% Fe lower orebody & 50% Fe upper and middle orebodies**  
NI 43-101 INDICATED RESOURCE  
**211 million mt @ 66.3% Fe, 0.05% P, 0.26% S, 2.5% SiO<sub>2</sub> & 1.0% Al<sub>2</sub>O<sub>3</sub> (deposit no. 1 only)**  
CUT-OFF GRADE  
**57% Fe lower orebody & 50% Fe upper and middle orebodies**  
NI 43-101 MEASURED RESOURCE  
**207 million mt @ 66.3% Fe, 0.05% P, 0.19% S, 2.7% SiO<sub>2</sub> & 1.2% Al<sub>2</sub>O<sub>3</sub> (deposit no. 1 only)**  
CUT-OFF GRADE  
**57% Fe lower orebody & 50% Fe upper and middle orebodies**

**4** COMPANY  
**Canadian Orebodies Inc. (TSX-V: CO)**  
PROJECT NAME  
**Haig Inlet**  
MINERAL TYPE  
**Iron**  
PROJECT TYPE  
**Exploration**  
NI 43-101 INFERRED RESOURCE  
**289 million mt @ 35.47% Fe**  
NI 43-101 INDICATED RESOURCE  
**230 million mt @ 35.17% Fe**

**5** COMPANY  
**Commander Resources Ltd. (TSX-V: CMD)**  
PROJECT NAME  
**Storm**  
MINERAL TYPE  
**Copper-Zinc**  
PROJECT TYPE  
**Exploration**  
SELECTED DRILL RESULT  
**18 m @ 10.5% Zn & 28 g/t Ag (historic)**

**6** COMPANY  
**Diamonds North Resources Ltd. (TSX-V: DDN)**  
PROJECT NAME  
**Amaruk Nickel**  
MINERAL TYPE  
**Nickel**  
PROJECT TYPE  
**Exploration**

**7** COMPANY  
**Peregrine Diamonds Ltd. (TSX: PGD)**  
PROJECT NAME  
**Cumberland**  
MINERAL TYPE  
**Nickel**  
PROJECT TYPE  
**Exploration**

**8** COMPANY  
**West Melville Metals Inc. (TSX-V: WMM)**  
PROJECT NAME  
**Fraser Bay**  
MINERAL TYPE  
**Iron**  
PROJECT TYPE  
**Exploration**

Having spent the past few years being driven largely by the industrial demands in China, the iron ore market has seen a recent downturn of prices, the lowest since October 2009. While this may result in slower development of a number of ambitious projects around the world, Nunavut houses two of Canada's most intriguing developments, which have the potential to drive development of the territory.

The Nunavut Impact Review Board is currently reviewing Baffinland Iron Mines' Mary River mine, which, if approved, would be the largest industrial development in the North to date. The potential \$4 billion project would require extensive infrastructure; including a call for a 150 km railway from the mine to a port to be built at Steensby Inlet, with nine icebreaking freighters running year round. The mine would require 950 employees to run it, and 3,000 for the initial construction phase. The significance of this project is also seen in the support services it has engaged. "Mary River became a linear project with roads and railway development and by 2008 it was the largest single project for Knight Piésold in Canada. Our involvement has continued with assisting the client with project permitting and securing approvals," said Richard Cook, senior environmental scientist, Knight Piésold Ltd. China-backed base metals producer MMG Ltd. is currently filing plans to build two mines in Nunavut over the next six years. Having recently submitted a project proposal for the Izok Corridor project; comprising the Izok Lake and High Lake deposits; it is possible that production could begin as early as the last quarter of 2018. The Izok Corridor is expected to produce 180,000 mt of 12% zinc in concentrate, as well as 50,000 mt of 2.5% copper in concentrate per year once in production.

The current interest in iron in Nunavut is also showcased by West Melville Metals Inc.'s Roche Bay project at their Fraser Bay property, who have recently made a deal where they may acquire up to 70% of the project from Roche Bay Plc. "The real bonus in this property is that there are areas with a very high grade of greater than 60%, which qualifies it as potential direct ship ore (DSO)," said Rory O. Moore, president and CEO.

Their second property in Nunavut, Sabina Gold and Silver sold their silver-rich zinc deposit, the Hackett River property, to Xstrata Zinc Canada Plc. for \$50 million and a significant silver royalty share on future production. "Xstrata Zinc is doing a lot of work on Hackett River right now and have stated that they will be entering the permitting process similar to be in production in 2018... The Hackett River royalty is a real bucket of value in a non-core asset for the company," said Pease of Sabina Gold and Silver.

Transportation costs will factor significantly in the operating expenditure of any iron ore mine, regardless of its location. As Baffinland's Mary River plans demonstrate, in Nunavut it is likely to also be a significant capital expenditure item; the railway and port form nearly three quarters of the total \$4 billion development tab.

Advanced Explorations Inc. already have a feasibility study and six years of baseline environmental work under their belts on their Roche Bay project, located on the Melville Peninsula on the Nunavut mainland. "The project is adjacent to a deepwater harbor and does not carry the capital expenditure of a railway or pipeline... The low capital expenditure and operating expenditure nature of the Roche Bay project makes us very competitive, with an estimated production cost of initially \$49/mt compared to our competition at a minimum of \$60/mt. Once we have expanded and optimized production to 8 million mt/y, we are confident our costs will be below \$40/mt, making us globally competitive," said John Gingerich, president and CEO, Advanced Explorations.

The Roche Bay project will still have to contend with the North's big freeze. "Short term, we are looking at a five to six month shipping window of ice-free conditions using a conventional fleet; this window can be extended by utilizing ice class ships with strengthened hulls.

"We are watching with interest the outcome of Baffinland's request for 365 day shipping access. Currently, our shipping window is adequate, but as the Roche Bay project develops we would have to review our strategy and consider an expanded window, similar to that of the Mary River iron ore project," said Gingerich.

Advanced Explorations has a 659 million mt NI 43-101 compliant resource in the inferred and indicated category at Roche Bay, the grade is relatively low (24.6% to 26.3% Fe) but, as Gingerich argues, "iron ore is not all about grade; it is about the logistics as well."

In September 2012 Advanced Explorations announced drill results from its Tuku 1 prospect, 65 km to the north of the Roche Bay property. The company has brought in 465 million mt inferred at Tuku

and the grades are substantially higher: 31.1% Fe with 50% plus highlights. "Drilling is currently being carried out indicating Mary River-type grades and this will have a significant impact on the economics of the project," said Gingerich.

The Roche Bay feasibility study, based on a 5.5 million mt/y operation, concentrating to 66% Fe, indicates a \$1.2 billion capital expenditure with a freight on board (FOB) cost per tonne of \$49 for a net present value (NPV) of \$642 million. The above numbers are based on a diesel-fueled power plant, but Gingerich is actively exploring switching to LNG which will yield significant environmental rewards and "save us a minimum \$8 per mt in operating expenditure versus diesel."

"The three critical factors for new (iron ore mines) are having the potential for at least 500 million mt, being open-pit and being close to a potential port," said Gordon McKinnon, president, CEO and director, Canadian Orebodies Inc.

Canadian Orebodies owns Nunavut's southern most exploration licenses, on the Belcher Islands. Iron ore was mined

on the islands in the 1950s and Canadian Orebodies "went to the Belcher Islands knowing there was something there, but started afresh... Our total land package is now over 39,000 hectares; the historic resource is on Inuit-owned land but the blocks to the north and west, which we believe to be its extension, are on municipal land, and so are claims we could stake.

"We made an aggressive start to our drilling campaign, as there is a bit of a race in iron ore, especially in Canada, to reach production. We drilled just over 9,100 m and 64 holes last year, beginning with very wide-spaced drilling and narrowing the area down as assays came in. We then infill drilled the area in phase two, to establish a 43-101 resource of 230 million mt indicated and 289 million mt inferred, both at just over 35% Fe; besides DSO projects, this makes us the highest-grade 43-101 iron ore project in Canada."

As ever, location dictates infrastructure and infrastructure dictates cost and therefore viability. "Being on one of the most southern islands in Nunavut and sitting at tidewater gives us our biggest advantage over other projects there. The island has no permafrost and is much closer to major infrastructure. There is the potential for deepwater ports on the island—this will be decided by port and shipping studies as part of the preliminary economic assessment we hope to reach later this year. As we are only 100 km from the Quebec shore, another possibility would be to put the entire infrastructure there, barging all the ore over for processing... we could apply for funding from the Quebec government under Plan Nord," said McKinnon.

Nunavut clearly has significant potential, but it will be the most northern of challenges, those of infrastructure and development, as well as current market conditions, that will determine this territory's pace of growth.

While this area holds great potential for the mining industry, it also holds true for the Nunavummiut. "Through wage economy, particularly driven by the development of the mining industry, we see a great chance to improve their, and their communities', quality of life," said the Hon. Peter Taptuna. •

## Belcher Islands: Canada's Next Iron Ore District



## Large Tonnage Iron Deposit Located on Tidewater

# Interview with Gordon McKinnon

PRESIDENT, CEO AND DIRECTOR, CANADIAN OREBODIES INC.

## Can you provide an introduction to Canadian Orebodies and the Haig Inlet project?

After one year of work at Haig Inlet, it has become our flagship project. Based on past work, it had a non-43-101-compliant government-documented resource, but we didn't have any drill hole locations, drill collar maps or assay data. We went to the Belcher Islands knowing there was something there, but starting afresh, with a plan to go up with three diamond drills at the beginning of last summer. Our total land package is now over 39,000 hectares; the historic resource is on Inuit-owned land but the blocks to the north and west, which we believe to be its extension, are on municipal land, and so are claims we could stake. Things still take time with the local communities, but we are very respectful of the fact that they face big decisions. It took them a long time to get comfortable with us, and understand that we would not be starting mining immediately, that there would be years of low-impact activity before deciding whether or not to go ahead with the construction of a mine.

We made an aggressive start to our drilling campaign, as there is a bit of a race in iron ore, especially in Canada, to reach production. We drilled just over 9,100 meters and 64 holes last year, beginning with very wide-spaced drilling and narrowing the area down as assays came in. We then infill drilled the area in phase two, to establish a 43-101 resource of 230 million mt indicated and 289 million mt inferred, both at just over 35% iron; besides direct shipping ore projects, this makes us the highest-grade 43-101 iron ore project in Canada. Our holes are consistent in width and grade over the whole deposit, which is completely flat-lying.

Our only hole at Haig South showed almost identical mineralization to the rest, so we will be drilling this wide-open

area this summer. In 2012 we will also be moving up to the Kihl Bay anticline area. We will be following the same wide-spaced drilling strategy as last year. We have already finished phase one drilling on the Haig North extension, and will today be completing phase one on Haig West. We are concentrating on the technical aspects of the Haig deposit this year as it is our view that there is no point in trying to move it more into the measured or indicated category until we are really firmed up on its metallurgy, about which we had no previous knowledge. It is our goal to show that the Belcher Islands could become Canada's next iron ore district, as there are numerous areas under application besides those we already hold. The three critical factors for new areas are having the potential for at least 500 million mt, being open-pittable and being close to a potential port.

## How likely are you to get full environmental permitting to build a mine on the island?

We would have to go through territorial and federal environmental permitting. Of course there will be hurdles to overcome, but at this stage we do not see any potential red flags. Projects are being built just as close to the ocean as ours would be, and having the community onboard will be a major advantage. There are about 900 Inuit living in Sanikiluaq on the islands, who we have a great working relationship with, and we have been running our entire program out of the community this year. Canadian Orebodies is the largest employer on the island at the moment, and they see the benefits from our presence. The community is very satisfied with the way we are working through its concerns. They were worried about marine life, birds and vegetation; we found the best response was to hire an environmental monitor elected from the community.



## Please could you walk us through the infrastructure aspect of the project?

Being on one of the most southern islands in Nunavut and sitting at tidewater gives us our biggest advantage over other projects there. The island has no permafrost and is much closer to major infrastructure, with an airport receiving six commercial flights per week, a fuel station, and a hotel/motel and government buildings available for rent. If we are able to establish a significant resource, and show we don't need expensive rail, we believe that we can leapfrog further advanced players that require rail to get their product to a port.

There is the potential for deep-water ports on the island – this will be decided by port and shipping studies as part of the preliminary economic assessment we hope to reach later this year. As we are only 100 km from the Quebec shore, another possibility would be to put the entire infrastructure there, barging all the ore over for processing and potentially looking at a multi-user facility. The LG 1 and LG 2 hydro projects down there would supply more than enough power to run our operations, and we could apply for funding from the Quebec government under Plan Nord. There are possibilities of synergies from working with other projects in the area. Century Iron Mines has publically announced its intention to build a slurry pipeline from the Duncan Lake project up to the Hudson Bay coast, where it wants to construct a year-round port and pellet plant. The PEAs for Duncan Lake and other projects will provide valuable public information we can utilize to move ours along. •

# Interview with John Gingerich

PRESIDENT AND CEO, ADVANCED EXPLORATIONS INC.

## Can you give a brief overview of Advanced Explorations and its current projects?

Technical knowledge and equipment can be bought, but a company's strength is in its management team and board of directors; Advanced Explorations Incorporated has a wealth of experience and expertise amongst its board and management.

We have all the positive technical data for our Roche Bay iron project, but iron ore is not all about grade and having a good geological asset; it is about the logistics as well. The project is adjacent to a deep water harbor and does not carry the capex of a railway or pipeline that many other iron ore projects face. The low capex and opex nature of the Roche Bay project makes us very competitive with an estimated production cost of initially \$49/mt compared to other current producers at \$60/mt. Once we have expanded and optimized production to eight million mt/y, we are confident we can lower our cost further making us globally competitive. Due to a limited resource available for the feasibility study, the start-up production is currently only at a small scale of 5.5 million mt/y with a mine-life of 15 years. We have billions more tonnes than this to be added, and the reality is that the minelife could be 25 to 100 years; we fully expect this to become a sustainable mining district.

The discovery potential for direct-ship ore at our Tuktu Iron Project north of Roche Bay is proving to be more substantial than we initially thought; drilling is currently being carried out indicating Mary River type grades and this could also have a significant impact on the economics of both projects. The area has a natural deep sea water port where the winds blow offshore, ensuring no ice-stacking issues, and the tides are minimal. Although it is northern in location, the logistics are favourable and that is what truly drives the asset. A project should not only be assessed by grade but also by FOB opex – how much does it cost to get the product on a boat.

## Logistics makes and breaks iron ore projects, can you talk us through this side of Roche Bay?

Our project is unique because the iron ore resource is not landlocked but we have direct ocean access within a few kilometres of the deposit. This advantage does not only result in a small mine footprint but also lowers the requirement for infrastructure and multiple-point material handling.

We are dealing with an Arctic location; however, historically, there has been significant mining production in the north. The challenges are issues peculiar to the north's winter and a cultural requirement for ten-weeks no-shipping relating to Inuit hunting on the ice, although Baffinland Iron Mines Corporation to the North of us has requested 365-day access which arguably, they will achieve. The reality is the north is opening up; experts are suggesting that the North Pole could be ice-free by the summer of 2015. This has prompted China to apply for membership of the Arctic Council as northern shipping is becoming a more viable route. Short term we are looking at a five to six month shipping window of ice-free conditions using conventional fleets; this window can be extended by utilizing Ice Class ships with strengthened hulls. We are watching with interest the outcome of Baffinland's request for 365-day shipping access. Currently, our shipping window is adequate, but as the Roche Bay project develops we would review our strategy and consider an expanded window, similar to that of Baffinland's Mary River iron ore project.

## Can you outline your experience of the permitting process in Nunavut for mining companies?

Advanced Exploration currently has seven years of base-line environmental studies completed at Roche Bay and commenced this process before drilling began; therefore at the environmental impact stage we now have more envi-

ronmental data than any junior. We had a vice president of environment before we had a vice president of exploration. The environment and indigenous people issues are the two main factors that prevent mines being permitted. Being mindful of this, Advanced Explorations has established strong bonds with the indigenous people who have called upon us for emergency rescue in the past and invited us to participate in ceremonial feasts and cultural ceremonies. With our board and management expertise, comprehensive environmental studies and early engagement with indigenous people, the permitting process should hopefully be relatively simple. Our footprint is small being based next to the ocean, and no major wildlife population will be affected by our presence.

## How have investors responded to your project, and do they understand Nunavut?

There is almost a preconceived response to a project in Nunavut; that it is not viable. There are 68 mines North of 60 globally proving that our Nunavut project with its FOB opex is viable. Other iron ore projects requiring rail infrastructure are currently looking at approximately \$17 per/mt to \$20 per/mt freight costs. They have larger challenges than us with a massive capex and an extended time-line to production. We will continue to promote our project and compete for iron ore investors. Chinese investors are attracted by Canada's welcoming manner towards foreign investment. In its desire to become more independent from the 'big three' iron ore producers, China is keen to invest in Canada, Australia, Brazil, and India. It has been stated that the country aims to source 30% of sea-borne imports from Chinese owned enterprises; by 2015 it is anticipated that China will control 300 million mt/ pa of production abroad. Let's be clear, the driver of Canadian mining is Asia's resource appetite. •

“Exploration in Northern Canada is expensive. It is remote, and in most cases you need a helicopter to get there, and as soon as you start flying around in helicopters your costs can increase exponentially. It takes a lot of perseverance and funds to operate in Canada’s North but the rewards can also be significant. It has been our goal to be involved up here, which is why we acquired our land position six years ago. Here we are six years later, still maintaining that strategic landholding, and we intend to continue doing that, given favorable market conditions to finance exploration on this exceptional project.”

**Richard Mazur**, President and CEO, Forum Uranium Corp.

“Nunavut is a challenging place to work due to the lack of infrastructure and extreme weather. However, it is no more challenging than other remote places in Africa or the Andes. Logistics is key and figuring out how to utilize the seasons properly to mobilize your equipment and supplies to your project is essential. Also key to any remote high-cost environment is the grade of your deposit. We are fortunate at Back River to have twice the grade of Meadowbank and Hope Bay. This grade has resulted in the robust economics in our preliminary economic assessment.”

**Rob Pease**, President and CEO, Sabina Gold and Silver Corp.

“Demand from China slowing is a concern out there and the markets have reflected that. The state of Europe and economic issues around the world have adversely affected the market, but in the longer term, we are very bullish. In early 2012 China announced that their GDP was projected to grow by 7.5% per annum. While everyone is concerned that this is lower than the past few years, to sustain this level of growth in such a large economy is remarkable. There is still plenty of demand for infrastructure development to be carried out in China, so demand for bulk commodities should be strong in the long-term. In addition, there is growing demand for bulk commodities from India and other emerging economies. Institutional investors understand this continued demand for iron ore, but smaller scale retail investors may not. However, despite the less than favorable market conditions experienced over the spring and summer months we have managed to successfully complete our IPO, which we consider to be a significant achievement.”

**Rory Moore**, President and CEO, West Melville Metals Inc.



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Courtesy of ATAC Resources Ltd.





# Navigating the Arctic North: Transportation and Logistics in Canada's Territories

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“The most significant risks facing mining companies in the North include: first, companies will face intense competition to attract interest in Northern projects, as Asian capital is increasingly looking toward African and select South American countries as jurisdictions where capital deployment is easier, providing less oversight of expenditures, environmental protection and labour rights; second, estimates suggest the Canadian mining sector will have a labour shortage in excess of 100,000 people by 2022, and with the North already experiencing low unemployment levels, companies will need to be proactive to mitigate the risk of labour shortages of both skilled and unskilled labor; and thirdly, the North has a massive infrastructure deficit, which will increase capital expenditures and ongoing operating expenditures as projects currently have inadequate access to public power, all-weather roads, rail, and accessible ports. However, until companies identify clusters of development, similar to northwestern British Columbia, or the Ring of Fire in Ontario, it will be difficult for the territories and federal governments to support development activity with public infrastructure.”

- Glen Ives, Chair,  
Deloitte LLP

# Sea, Sky, and So Much Snow

## Transportation and logistics in Canada's North

### Kilometers of Paved Road and Highway by Territory

Source: various

Yukon	4,800km
NWT	918km
Nunavut	850km

### Infrastructure Map

Source: various

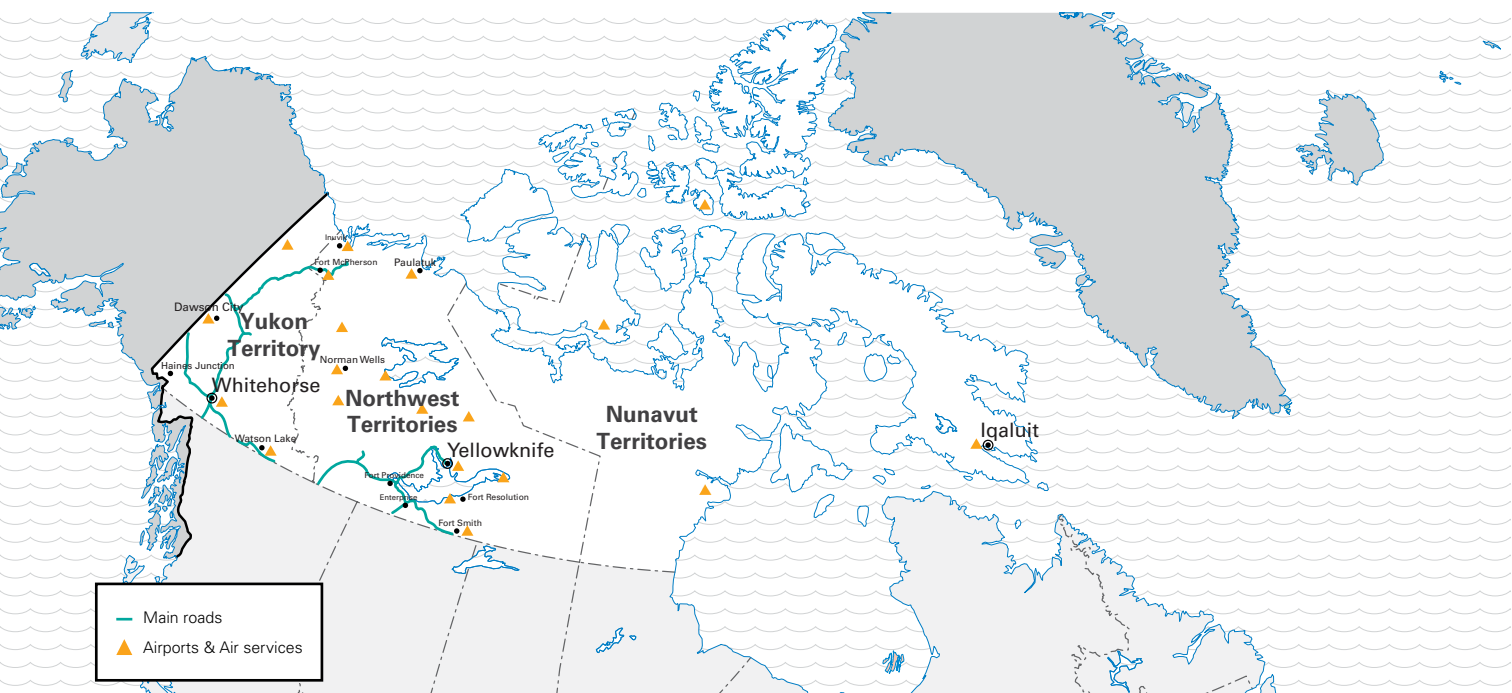
A land area of almost 4 million square kilometers yet a population of just over 100,000 renders Canada's territories one of the most logistically-challenging environments in the world. In total, the three territories together maintain less than 7,000 km of paved road and highways. To put this into perspective, the United Kingdom, with less than one sixteenth of the land area, contains a total of 398,350 paved roads and highways. The cost and effort required simply to transport goods and equipment in such a situation, let alone build a mine, should be prohibitive. Luckily, local and southern transport and logistics companies have maintained a positive attitude: and are engaging some of the most creative solutions to be found anywhere in the world.

Miners are even more reliant on waterborne transport than explorers in the Arctic and Subarctic. Montreal-based Fednav Ltd. own the largest fleet of ice

class bulk carriers in the world, including a number of icebreakers.

"We have operated for over 50 years in the Arctic. Fednav has been involved in every single major Arctic project, including the Distant Early Warning (DEW) line sites, Cominco Ltd.'s Polaris zinc mine (76°N), Nanisivik zinc-lead mine at Pond Inlet (72°N), and Maarmorilik zinc-lead mine in Greenland (70°N)," said Thomas Paterson, senior vice president, ship owning, Arctic and projects. "Mines in the Arctic have to get their product to market on time just like mines in the south and they need to be able to rely on their shipping provider. Because ice class or polar class bulk vessels are so uncommon and expensive to build, companies with large fleets are more attractive as they can offer good back up in the event of a problem."

Mines in the North either ship their product year round (though there may be fallow periods to allow for hunting and animal mating seasons) or stockpile ore and wait for the summer season. At Teck Resources' Red Dog mine, 68°N in Alaska, zinc concentrate is stockpiled for a hundred day shipping window. Vale's Voisey Bay mine, on the other hand, is serviced year round by Fednav's Umiak 1. "Umiak 1 was built in



2006 and is the largest and most powerful icebreaking bulk carrier in the world; it can break through 50 ft ice ridges and shear zones. This ship was built, and is used, specifically for Vale's Voisey's Bay nickel mine, making 12 voyages per year to ship nickel from Voisey's Bay to Quebec."

Unlike most seaborne mineral transportation, shipping contracts for northern mines are typically ultra long-term, reflecting the vast capital expenditure and limited utility of ice class vessels. "We have been operating Red Dog for 23 years... Long-term contracts are often necessary as Fednav commits to build a ship to accommodate the customer's needs," said Paterson.

Yet even when supplies make it to the coast, further innovation is often necessary to take it to site. "It is not always easy to predict when the ice will move in as there have been so few years of trending," explained Heather Stewart, president of Braden-Burry Expediting (BBE) Ltd.

"In the harshest temperatures, we often get requests from mining or exploration juniors to transport equipment and materials to their sites. The only access to their land is by ice and by snow and we have, for many years, with companies such as Newmont, provided this service since the initial exploration. Kitnuna Corp. [has] invested in specialized equipment to transport these goods to mine sites. We have fuel tanks on skis, cargo sleighs, low ground pressure equipment and so forth. Kitnuna have also built ice strips capable of handling Hercules aircraft," said Claudette Dion-St. Jean, interim COO, Kitnuna.

Due to the remote locations of many projects and the lack of road infrastructure, which varies by territory, many in the industry rely heavily on air transport for their activities in the region. The amount of business providers of air services in each territory receive is often a mirror of the industry itself; in which case, not all news is good. "There has actually been a real downturn in air transport [in the Northwest Territories]," said Myles Cane, vice president and general manager, Summit Air.

In Yukon new routes could potentially open up to support the mining industry. "Air North is endeavoring to reintroduce scheduled flights to Mayo and Watson Lake... The mining activity in the area could lead to the viability of chartered/scheduled flights to Mayo and Watson Lake [in the near future]," said Joseph Sparling, president of Yukon-based Air North.

"Business certainly has grown in the last three years. Last year was an all time record for exploration in Yukon, but I think this year we will see a drop of about 40%," said A.A. (Arden) Meyer, general manager, Trans North Helicopters, discussing what is now the second highest year on record for exploration dollars spent in Yukon.

Operating throughout the region, the vast stretches of land require advanced planning and a particular focus on fuel supplies and timing. "Relying heavily on fuel being flown in for our planes, we need a good runway that allows us to bring in an adequate supply of fuel to do our work. In many areas, we need to bring in fuel from other locations, which quickly increases a project's cost," said Adam Shales, sales and marketing manager, Vancouver, Fugro Airborne Surveys Corp.

As exploration continues in Canada's most untouched regions, transport and logistics will remain a vital factor to success and development.

## Yukon

For a population of just over 35,000, Yukon boasts some of the region's most developed infrastructure. With 4,800 km of all-weather roads, 11 airports, comprised of 10 regional and one international, access to two ice-free ports and a territory-wide broadband telecommunications network, Yukon is prepared for the mining community.

Not all is perfect however. Privatized runways at some of these airports tend to be underdeveloped or not particularly well maintained which leads to higher operating costs. "There are only two

paved runways in Yukon; we therefore have to have aircraft capable of landing on gravel runways. These gravel runways could be longer and are payload restricted. All of these things tend to increase the cost of providing a product because they restrict us from introducing new fuel-efficient aircraft as they cannot land on gravel runways," said Joseph Sparling, president of Yukon-based Air North.

Despite an impressively road network, there is no escaping the fact that Yukon is a huge territory with many remote areas. Many mining exploration sites require air cargo solutions. "We currently require fly-in capabilities as our camp is located on the side of the Nahanni Range road which services an operating tungsten mine to the north. The helicopter flies our crew and supplies in daily, flies them out, transports the rigs and so forth; a third of the costs at least goes towards supporting this fly-in," said Jim Pettit, president of Aben Resources Ltd. More than this, however, the one critical area to watch as Yukon's mining industry continues to develop is power.

With an aged power infrastructure, a grid that is currently running at near capacity, and no clear means of increasing this power supply, mines that are looking to come online in the near future face critical issues.

"The larger future mines are going to have to think about a source of energy, whether it be hydroelectric power or local LNG," said John S. Brock, president and CEO of Pacific Ridge Exploration Ltd., who are currently carrying out a drill program at their Mariposa project located in the heart of Yukon's gold district. "The strategic location of the [Freegold Mountain project] will become an increasingly important factor ... [Capstone's Minto Mine] is about 30 km from us as the crow flies. There is another copper project to our east, Copper North's Carmacks property, which is in its final permitting stages. The electricity utility (Yukon Electrical Company) has plans to extend a spur line from Carmacks to that property which would give us an even closer conduit to grid power," said John Burges, president and

*continued on page 115*

# Interview with Craig Unterschute & Eric Rieder

OWNER & HEAD PILOT, GREAT RIVER AIR

Can you give a brief background of Great River Air, the current size of your operations and why have you chosen Yukon as your base?

**CU:** Great River Air's primary driver to move from the Northwest Territories to Yukon was the regulatory environment; it is difficult to run a business in the Northwest Territories, as there was a lack of political incentive. Depending upon the season and volume of work we operate six aircraft, predominantly Britten-Norman Islanders; arguably a purpose-built aircraft for the mining industry. The size of the aircraft is perfect for the exploration side of mining for ferrying weekly supplies and passengers. We also operate single engine Cessna aircraft, adapted to carry out environmental surveys. The company is orientated to being a small bush plane operation, but also has developed to move into the regulatory side.



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What percentage of your clientele is associated with the mining industry; and has this figure increased over the last three years?

**CU:** 60% of our clients are mining industry related. 2011 was a robust year for business, but historically the Yukon economy tends to peak and trough. There are many factors driving base metals, including India and China; Yukon's access to seaports, and so forth, making the territory a more favored mining destination compared to the Northwest Territories, and arguably, Nunavut.

Is the main focus of the company to accommodate the needs of the exploration sector; and do you have a niche service that would differentiate you from other operators?

**ER:** We have significantly invested in aerial imagery, unique north of 60, including high-resolution photography which is IT focused; a niche service that has stimulated much interest.

**CU:** Our operation and equipment is focused on the needs of the exploration sector; though, our niche service on aerial imagery will afford the immediate service of a local company hastening the turn-around time for the regulatory process for permitting, rather than instructing an air charter company with a longer time-frame from outside the territory.

Can you outline particular or unique challenges you have experienced on key projects?

**CU:** Kinross was the first company to invest in serious infrastructure in a remote part of Yukon; previously other companies had only constructed fly-camps. The Kinross project is a core job for Great River Air, and one of the reasons why it is building an additional hanger in Dawson City is to accommodate the anticipated needs of Kinross when progression of the White Gold project commences. The geography of Yukon and the postage-stamp landing strips on sides of mountains with downwind landings are challenges we have to negotiate; to accommodate this we use Sportsman Stol Kits in preference to Robertson Stol Kits. Our policy is to try to hire pilots who are Yukoners who will have a local geographical knowledge and an appreciation of the climatic conditions. We offer our clients one of the most experience flight crew and pilot engineer in the air charter market.

Have you found it challenging to source skilled pilots; and do you have any in-house skills training?

**ER:** Skilled pilots are a limiting factor on how fast a company, such as Great River Air, can grow. To date, we have been able to fill pilot vacancies with personnel who have the necessary skills. We have competitors that have found it easier to buy airplanes than source pilots to fly them. We would not take on someone with zero flying experience, but would invest time and money via in-house training in a person willing to commit to Yukon with the right mindset but might only have limited flight experience. Stating that, Yukon presents flying challenges that only an experienced pilot can negotiate. •

*continued from page 113*

CEO of Northern Freegold Resources Ltd.

"Lack of power is a major issue for Yukon; fortunately our properties are located near the Whitehorse to Dawson highway where we could potentially run a line to a power source, plus the second largest power plant in Yukon is on the western edge of our properties," said Tony Simon, president and managing director YES Exploration Syndicate. The territory's energy provider and the Yukon government acknowledge this problem. "Yukon Energy has a small isolated grid but is striving to keep pace with the growing demands of the mining sector," said David Morrison, president and CEO, Yukon Energy Corp., who deal with all power issues related to the mines. "Our grid sales capacity is 400 gigawatt hours; with the developing mines it is projected that the grid would need 600 gigawatt hours by 2015 to keep pace with demand." Yukon Energy are currently working with the industry, examining different ways to approach this issue. "For the last 12 months we have been working towards our feasibility study and permitting. The road infrastructure to the project was not an issue, but the key ingredient has been the need to provide 120 megawatts of electricity [to our Casino project]" said, Paul West-Sells, president and COO, Western Copper and Gold Corp. "We have been working with Western Copper and Gold that has the \$1 billion plus Casino project for which it will alone require 800 gigawatt hours; way beyond Yukon Energy's supply capacity... Yukon Energy and Western Copper and Gold are working together and sharing their expertise to determine if LNG is a feasible power supply solution," said Morrison of Yukon Energy.

The private sector has been helping to fill this gap. "[In Yukon] neither the transmission lines nor the power lines are substantial enough to support the mines. Most mines will bring in power. Due to the remote locations of many of these mines, they may not have a power source already in place and this requires services like ours to ensure the exploration sites and mines themselves

"BHP has been our anchor client for 20 years moving with them through their exploration, construction, and production phases. Our other clients include diamond and gold companies, and oil and gas companies in the Delta and Sahtu regions. A showcase project is with one of our clients, Newmont Mining Corporation who has the Hope Bay mine site in Nunavut, a unique location for logistics. In 2010 a major sea-lift was required at Hope Bay to bring in modules containing buildings, camp facilities, plus equipment. We were involved not only with the supply chain for the air support out of Edmonton and Yellowknife to the mine site, but also operated the sea-lift marshaling and packaging program out of Vancouver where we loaded equipment originating from all over the world onto barges and other vessels. This equipment was delivered via Canada's west coast to Hope Bay before the annual big freeze; it was one of the biggest moves of modules ever successfully accomplished in the north."

**Heather Stewart, President, Braden-Burry Expediting (BBE) Ltd.**

"All projects in Canada's North are challenging due to its lack of infrastructure and logistics, and our raw materials have to be transported to the mines during the short timeframe of either a summer sealift or winter road. Dyno Nobel commonly builds facilities at a mine site to enable the manufacture of up to one year of explosives inventory. There are environmental concerns, especially given the amount of fresh water in Canada's North. We have developed and tailored products and applications to substantially restrict the effects that ammonium nitrate might otherwise have on the waters and fisheries, and are currently using these products and applications at Meadowbank, Diavik, and Ekati."

**Chad Koshlay, Technical Services Representative, Dyno Nobel Inc.**

"We perform a lot of mapping in the North, most of which is geological in nature. Many of the government programs are geared towards that, but we also have a good number of larger mining companies that have huge tracts of land and want to be able to pinpoint where they need to focus their exploration. We also perform direct detection for specific commodities, like base metals, uranium, gold, and diamonds... Infrastructure can be a problem for us as we require a reliable source of fuel to operate our planes and need a good runway to operate out of to do our work. In many projects, we need to bring in fuel from other locations or need a base farther from the survey area, which quickly increases a project's cost. For reasons like this, we need to understand where we are working, so that our project management team can work with the client to come up with a solution to ensure that we can run the survey efficiently."

**Adam Shales, Sales and Marketing Manager - Vancouver, Fugro Airborne Surveys Corp.**

"There is a power supply issue for projects in Yukon; the territorial government is addressing this problem and has recently announced an initiative for financing a gas processing plant in the Fort Nelson area which will be trucked to Yukon to generate electricity. Other forms of power: hydro-power is an option but not palatable; and there are oil deposits in Yukon. Our project power supply is via a high power transmission line leading to the old Faro mine-site. The road system could be improved but is better in Yukon than Northwest Territories, Nunavut, and parts of northern British Columbia. Securing skilled labor is a challenge as we are in competition with Fort McMurray with its oil sands industry. On the upside Yukon has access to shipping at the Port of Skagway; Yukon's tax regime is positive; there is political stability; and the territorial government has a positive stance towards the mining industry."

**Doug Eaton, President and CEO, Strategic Metals Ltd.**

remain linked up and supported,” said Kevin Ross, general manager, NU-Line Powerline Contractors Ltd.

The government appears fully aware of this problem and is currently pushing ahead with a number of initiatives. “Short- to mid-term, we are moving forward with the independent power producers policy, with net metering, and, as a transitional fuel, with the use of LNG; Yukon government is putting in place the legislation and regulations for LNG,” said Hon. Darrell Pasloski, Premier of the Yukon government. There is already exploration underway to confirm the plausibility of this initiative.

“Along with three other First Nations and the governments of Yukon and Canada, we launched an LNG study to supply energy to the emerging mining market ...The partnership between the First Nations is called Dempster Energy Services...[If developed] our initial priority is the local market, but if there is enough energy to export we will consider this; China would be the obvious choice, given its role in production. Our project is driven by First Nations and is unlikely to see the same political problems plagued by the Gateway pipeline,” said Ron Daub, executive director of the Vuntut Gwitchin, a Yukon-based aboriginal corporation.

Other means of tackling the power issue are also being explored. “Yukon Energy has been carrying out a resource planning exercise looking at various primary options: geothermal, biomass, small hydro, wind and LNG. Victoria Gold is the driver of our initiative, stating that it will require power by end 2014; we are endeavoring to work to this timeline,” said Morrison.

## The Northwest Territories

With only eight road networks throughout the territory, for those whose activities extend past these, infrastructure is of critical importance. “The vast geography of the Northwest Territories does not

have the transportation infrastructure that the southern jurisdictions have,” admits Hon. David Ramsay, Minister of Industry, Tourism and Investment and Ministry of Transportation for the government of the Northwest Territories.

“It is an area of great concern to us... With the advancement of resource development in the central Mackenzie and the number of large companies involved, we will see the progression of the Mackenzie Valley Highway all-weather road infrastructure imminently in the central Mackenzie. Meetings are being held with the companies involved in the central Mackenzie to discuss a plan to advance all-weather roads in the Sahtu. The Department of Transportation is also looking at extending the seasonal road from north of Yellowknife into the Slave Geological Province; an important area for the development of further mines as we need to diversify our mining portfolio.”

“The government of the Northwest

Territories is building a bridge at the Mackenzie River, which will bring great improvements to the transport here,” said William E. Cole, general manager, central and western Arctic, Manitoulin Transport Inc. “We are looking forward to the completion of the bridge and the non-interrupted service it will bring. This will benefit mining clients as they will not have to pay that extra charge that is associated with the helicopter transport. The roads themselves are quite frankly excellent and well maintained.”

A unique northern innovation, ice roads which have been in place since 1982 help ensure that those across the territory have critical supply routes in place, if only for an average of 67 days per year between February and March. The roads, which stretch 600 km (87% based on frozen lakes), offer access to the Jericho Diamond mine, the Lupin mine (for which it was originally built), Diavik Diamond mine, Tyhee Gold, and Snap Lake.

*continued on page 118*

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# Interview with Suzanne Paquin

PRESIDENT AND CEO, NUNAVUT EASTERN ARCTIC SHIPPING (NEAS) INC.

## **Please can you give a brief overview of NEAS, its milestones and the services currently offered?**

NEAS commenced operating in the late 1990s, but it has been carrying out sea-lift under a range of names for over 50 years. Our shareholders include: Makivik Corporation, an Inuit Birthright Corporation in Northern Quebec under the James Bay and Northern Quebec Agreement, and Transport Nanuk a joint venture between Logistec Corporation, a marine transportation company operating on the east coast of North America, and The North West Company who retails food and everyday products. NEAS is the fastest growing sea-lift operator in the Arctic today; its fleet has grown by 160% in the last five years. Our service offering in the north is the shipping of general and containerized cargo, machinery, construction, retail, personal effects, and drummed oil; IWe operate in the ice-free season from June until the end of October/early November.

## **Can you talk us through a typical sea-lift operation in the north?**

Cargo is loaded onto our ships at the Port de Valleyfield, where NEAS has a cargo service center with a 100,000 sq. ft. warehouse and distribution point; goods are containerized, crated or packaged for shipment, transferred to our terminal and loaded on board the ship in community order. We service 22 communities in Nunavut, cover mine sites, and 14 communities of Nunavik: our sailing schedules have to be very strategically planned. Each vessel covers on average of about eight communities per sailing, and we have four ice-class vessels each performing at least three sailings per year. When the vessel arrives at the community there are no port facilities so we anchor off-shore. We are fully functional and supply our own loaders, barges, lighting, generator, and portable office to effect the cargo off-load. Loading onto barges off-shore can be dangerous and difficult when there are severe weather conditions. On a first sailing there are occasions when ice has to be cleared from the shore to en-

able the discharge of cargo. When the cargo has been delivered we collect our portable office, barges and lighting and sail to the next community.

The northern communities are totally reliant on the annual sea-lift operation since there are no roads to or between communities; there is no other form of infrastructure to accommodate the transportation of goods. The north is desperate for marine infrastructure facilities but there is no consensus about what form this will take or who will pay for it. Iqaluit has a 35 foot tide allowing us only two four-hour windows per day to operate. Without infrastructure in the north, there will be no development. Infrastructure development is the backbone to economic development in the Arctic.

## **How significant is mining, including exploration, to your business; what services do you provide to the mining sector?**

Mining is significant to NEAS and is growing but it does have peaks and valleys. We deliver whatever the mining sector requests, and have the knowledge and expertise of sea-lift in Canada's challenging north. On occasions we act as a consultant as part of mine planning; our input would include scheduling the delivery of equipment as well as all-round turn-key solutions for the mine. NEAS carried out all the mobilization for the Baffinland mine site for Milne Inlet and Steensby. The shipping market is competitive amongst a small group of carriers.

## **Do you have the facilities to transport goods from the waterline inland; what is the impact on opex and capex for shipping year-round in the north; and are there any plans for trans-shipments in inland waterways?**

We do transport cargo inland for short distances but prefer to leave it to the local transport businesses who are in a better position to carry out this service offering. We do not sea-lift year-round in the north; a specialized vessel would be required to carry out winter shipping in ice conditions

which would certainly add to our capex. The all-year round vessels would normally be Arctic-Class ore carriers, and would only sail to a location that has port facilities for loading and off-loading. We already carry out trans-shipments in inland waters, for example, our vessels anchor off Helicopter Island, Nunavut, from where we offer a tug and barge service to Baker Lake.

## **What are the advantages for NEAS being part Inuit-owned from a business perspective?**

During the formation of Nunavut, NEAS felt it was very important for the communities of the north to have an involvement with sea-lift; our sea-lift service is critical for their survival. We invited Makivik Corporation, who represents the interests of the Inuit people, to become an equity shareholder. Our shareholders are always keen to invest in NEAS, for example, since 2000 they have supported the on-going renewal of our fleet. In 2011 we brought in local shareholders from Pond Inlet, and Igloolik, Nunavut, and as the north develops, we will introduce other local shareholders; we feel they are critical to the development of the north. For the last ten years NEAS has offered training and employment programs for the local Inuit from Nunavut and Nunavik; this has proved successful. On each of our vessels we have two Inuk, an Inuk director of marketing in Iqaluit, and soon to be appointed in the Kitikmeot and Kivalliq regions. The Kitikmeot region covers the Northwest Passage for us; its the fourth year this popular service has been available.

## **What is the vision for NEAS in four years' time?**

In four years' time NEAS will still be carrying out its sea-lift operation. We aim to be the shipper of choice for the mining fraternity in the north, and continue to add vessels to our fleet in readiness for the anticipated increase in shipping volume. Working in the north is all about planning, being flexible, and providing a great service. The north is the last frontier. •

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*continued from page 116*

In 2011 alone, 6,832 northbound truckloads hauled 239,000 mt of goods to their northern recipients along these routes. The future of this northern lifeline though, is threatened due to change in the environment.

“Our firm became involved in 2001 and that was when there was a recognition that low volumes were increasing and the seasons were shortening due to climate change and so there might be a point when they would not be able to get all their supplies in a single winter season,” said Ed Hoeve, project director, Northwest Territories and Nunavut, Arctic region, engineering practice, EBA Engineering, a Tetra Tech company.

“We have seen climate change impact upon transportation and infrastructure first. Another job that the EBA is soon to implement is the seasonal overland route; this is one adaptation solution by putting the first 150 km of the ice road on land, which is quite critical. So both in the degradation of the highway and northern airstrips we see vulnerability to settlements due to climate change. The Northwest Territories however are far more vulnerable to climate change, due to a warm climate and the large amount

of permafrost.”

Speaking more broadly about the North's infrastructure concerns, Premier McLeod said: “A strong relationship with the federal government is key to addressing these infrastructure issues. The federal government still retains responsibility and authority for new roads in the Northwest Territories and plays a very important role in infrastructure development both here and across the country. Therefore our relationship with the federal government is very important to us and we work hard at it, both individually and pan-territorially.”

## Nunavut

Of the three territories, Nunavut is the most reliant on sea cargo and transport to supply their exploration and production, with the mining industry as its largest driver. With strategic connection to the international ports in Montreal (“some of the best consolidation ports in the world,” according to Heather Stewart, president, Braden-Burry Expediting (BBE) Ltd.) and Vancouver, sea

transport to Nunavut remains one of the key means of equipment and supply transport for the mining industry.

“Currently, there is insufficient infrastructure to manage the significant projected growth of mining in Nunavut... Nunavut has the longest coastline in Canada, yet has only one incomplete marine facility, a deterrent to investors. In the south it takes seven years for a mine to develop into production; in Nunavut there are still undeveloped identified resources from the 1930s. The lack of infrastructure in Nunavut, the cost of shipping fuel to mine sites, and the shortage of skilled personnel are major concerns for mining companies; arguably, an impediment on developing a resource discovery,” said Hon. Peter Taptuna, Deputy Premier, and Minister of Economic Development and Transportation, Government of Nunavut.

While infrastructure is one key consideration in Nunavut, the other is the weather. There are few other international mining destinations that are so heavily restricted by the length of the exploration season and remote location. Patrick Downey, president and CEO,



Elgin Mining Inc. explained that “in Nunavut there is world-class resource potential, but it has to be understood by investors that this is a remote area with a limited time frame each year in which to explore. Whatever deposit is found it is essential that it has the grade and size to support the logistics and capital required to develop the deposit.”

In the words of seasoned explorer Jon North, whose firm Northquest Ltd. recently announced an intersect of 164 m at 5.9 g/mt gold on their Pistol Bay project, “working in the Arctic is like a military operation without the shooting; it is all about logistics.”

Richard Mazur, president and CEO, Forum Uranium Corp. further emphasized the “high effort, high reward” nature of Nunavut exploration. “Exploration in northern Canada is expensive. It is remote, and in most cases you need a helicopter to get there, which often sees costs increase exponentially. It takes a lot of perseverance and funds to operate in Canada’s North but the rewards can also be significant.”

Shipping is crucial in Nunavut, as no roads link the territory’s 26 settlements to each other or the outside world. However, with much of Nunavut located inside the Arctic Circle, even waterborne transport comes with its own unique set of challenges. Goods are brought to the north during the sealift season, when the pack ice has retreated. Most explorers will have to factor the sealift into their plans and developers will find that they have to ship nearly all materials to site during the two to four month summer window.

“Sailing schedules have to be very strategically planned. Each vessel covers on average about eight communities per sailing, and we have four ice class vessels each performing at least three sailings per year,” explained Suzanne Paquin, president and CEO of northern sealift specialist Nunavut Eastern Arctic Shipping (NEAS) Inc. It is not just the seasons that make shipping difficult in Nunavut. “There are no port facilities (in the territory) so we anchor offshore. We are fully functional and supply our own

loaders, barges, lighting, generators, and portable office to affect the cargo offload. Loading onto barges offshore can be dangerous and difficult when there are severe weather conditions.

On a first sailing there are occasions when ice has to be cleared from the shore to enable the discharge of cargo. Iqaluit has a 35 ft tide allowing us only two to four hour windows per day to operate. The North is desperate for marine infrastructure but there is no consensus about what form this should take or who will pay for it,” said Paquin. Due to the short time frame, challenging conditions and limited availability of ice class ships and people, shipping in Nunavut is expensive. Paquin argues that explorers and miners should consider sealift at an early stage in order to optimize their operations. “On occasions we act as a consultant as part of mine planning; our input would include scheduling the delivery of equipment as well as the all-round turnkey solutions for the mine. NEAS carried out all the mobilization for the Baffinland mine site for Milne Inlet and Steensby.”

Due to the absolute lack of ports, explorers and miners in the North will often look to their freight contractors to provide innovative stevedoring solutions. Madeleine Paquin (sister of the aforementioned Suzanne Paquin) is president and CEO of publicly-listed Logistec Corp.

Logistec has been called upon to provide transloading at some of Canada’s most remote mine sites. “At its testing phase of extraction, Logistec loaded Baffinland’s iron ore onto barges (from a specially constructed floating dock) to be fed to the mother vessel a little further into the water, where it was deeper... Our solutions are customized on the basis of where, and with what, we are working, and on required volumes,” said Paquin. Giving an example of a Quebec iron ore mine, Paquin explains that “this was a case where there was no dockside capability to handle the large vessels that would be used to carry the iron ore to China. We used the available dock and a transshipment

service through a self-unloader. We had a big conveyor system where several loads of iron ore were put into the temporary vessel, which then fed into a larger ship anchored at sea.”

While such innovative loading solutions can meet one-off and short-term requirements, Paquin argues that “transshipping is not a long-term solution. Ideally you want to build a dock which negates its need; this can be done, but it is more costly. You have to pick where the water depth is, and run your barges there... Logistec is first and foremost a cargo handling company, but we are always interested in long-term projects that need capital investment and we are prepared to invest in ports ourselves. We like long-term contracts where we can bring specialized, custom-built solutions.”

After transport, power is the second major infrastructure challenge in Nunavut. “We cover the single largest service area in Canada (2 million sq km) and overcome many challenges related to climate, geographical location, and aging infrastructure” observes director of engineering at territorial government owned Qulliq Energy Corp., Stephen Kerr.

Nunavut miners have to invest in power generation capacity and endure increased costs as a consequence of operating so far from the grid. QEC hope to work with new miners to reduce costs though Kerr acknowledges that this is not always easy: “few of the major finds are in close proximity to an existing community, where the potential to supply both the community and mine site (from one generation plant) are economically viable... This makes it difficult to tap into these potential energy opportunities. We have talked to a number of players regarding potential synergies, including a prospective mine outside of Rankin Inlet. Ideally, we can figure out a way to build a power plant near this community and take advantage of a mutually beneficial situation, that would be a win-win-win scenario for QEC, the community, and the developer.” •

# Interview with Kevin Ross

GENERAL MANAGER, NU-LINE POWERLINE CONTRACTORS LTD.

**Could you give us a brief history of NU Line Powerline Contractors in Yukon?**

At the time of establishment of our Yukon office, NU Line Powerline Contractors were based in Alberta, and invited by a former employee to come to Yukon and look at establishing an office here. We found there was a lot of mining activity and we decided it would be worthwhile to open an office in Yukon. Currently, we have not had any projects in Nunavut, but we have completed government electrical projects in the Western region of the Northwest Territories. There are about twelve to fourteen employees working out of our Whitehorse office. As a company, NU Line employs about thirty-five to forty people on any given day.

**How have you seen your office grow in the past three years? What percentage of your business is focused specifically on mining?**

Most of NU-Line's business is focused on the utility sector; power, and electrical for the government or smaller private sector developers. Nu-Line only do a small portion of business directly with the mines, though the work we do with the gov-

ernment directly supports the mining industry in many cases. **As an Alberta-based company, could you tell us about some of the unique differences between supporting the mining sector in Yukon and Alberta?**

The projects we engage in Yukon are very different from those in Alberta. In Yukon, the type of mining performed seems to be different to Alberta; this requires different power needs. Coming from Alberta, the infrastructure in the North, and the support services present, are not as developed. As well, the distances traveled are far greater than what we are used to be and some of the communities we go to have difficulty supporting and housing our crews on larger projects.

**Who have some of your key mining clients been?**

We have had a number of significant mining clients in Yukon including Capstone Mining Corp., Alexco Resource Corp., Denison Mines Corp., BYG Natural Resources Inc. and the Ketza River mine. We have also done a lot of work with remote power in the exploration camps in Yukon.

**Do you perform reclamation work as well?**

NU Line does not do as much reclamation work any more. Aboriginal engineering took over for Denison in the Farrow area and that is a new relationship that we would need to establish. We currently do some work with Yukon Electric who is our main customer for power.

**Could you give me some insight to the power infrastructure, and access to power, which the Yukon holds?**

As we understand it, BC will be constructing a major transmission line in the north of BC, which will create significant changes to power in the North; the amount of power will be greater. I believe they are trying to boot the transmission lines up north to lessen the current dependence on diesel as most mining sites currently work off of generators.

In short, neither the transmission lines nor the power lines are substantial enough for mines to run off of. Most mines will bring in their own power. Due to the remote locations of many of these mines, they may not have a power source already in place and this requires services like ours to ensure the exploration sites and mines themselves remain linked up and supported.

**Have you seen the level of competition rise, and if so, what sets you apart?**

Regarding power, we have one main competitor who has been here a lot longer than we have. As for electricians, it is a very competitive industry. To counter these challenges, we are trying to fashion ourselves as a one-stop shop; we perform power and electrical services as well as generators and infrared technology and are working to set ourselves apart from the competition.

**What is the vision for NU Line Power Contractors?**

NU Line's vision is to go south. We think once the new transmission line goes in, then Northern BC will be a major mining hub. In Yukon, we are trying to become a one-stop shop for the mining sector. NU Line's established themselves in Yukon because of the mining industry and our long history with mining in Alberta and we plan to continue to grow and expand within this market. •

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# Interview with Wendy Taylor

PRESIDENT, ALKAN AIR

## Can you tell us briefly about the history of Alkan Air in Yukon?

Coming up on our 35th anniversary, Alkan Air was initially founded for charter and the scheduled service industry. We departed from scheduled service in the 1990s, choosing to focus on our core services of exploration and air medevac. We have held the contract for air medevac in the territory for over 20 years now, servicing all of the communities and providing transportation down to Vancouver, Edmonton, and Calgary in our King Air 200, 300, and 350. Exploration was quite busy here in the 1970s and 1980s, but ebbed until the last six years. Mining now accounts for approximately 65% of our business and our fleet, 15 aircraft in total, has increased its exploration aircraft from four to nine, with passenger capacities ranging from one to 19. We try to be a full-service provider, which is necessary when so many of the decisions affecting exploration are made down in Vancouver. We bridge the distance between the main offices and work sites as seamlessly as possible by providing security, passenger pick up and delivery, refrigeration, and even freight tracking. My goal is to solve all of your problems from the point you call us until you get in the bush. Exploration is a fascinating industry that we are passionate about, and we do everything to make exploration companies' projects as efficient and effective as possible.

## What is a key project that illustrates the operational climate of the Yukon?

The most recent project that we have been with from an early exploration stage is Kaminak Gold Corp. When they first started the project they were using an inadequate airstrip, which resulted in them needing to use a helicopter daily, and that is exorbitantly expensive. Our first order of business was getting a usable airstrip up and running, so we met with the personnel on the ground to determine what types of aircraft would need to use the strip, and what options we had for the strip's location. One of the most crucial planes in our

fleet is the De Havilland DHC-6 Twin Otter. The Twin Otter can handle extremely rough strips (sometimes the ground crew rip out the trees and we land the next day) that no other plane can, so it goes in first to get camp set up. After that, we work closely with the client over the course of the season developing that airstrip so that by the end of the season it is long enough to use a variety of craft to move people and equipment out. This was the approach we successfully used for Kaminak.

## Does Alkan offer a unique service to set itself apart from the competition?

We are obviously a company that flies air-planes, but at the end of the day we consider ourselves to be a service-oriented company, taking a "cradle to the grave" approach to our clients' projects. If you need security services, we have a security company that will bill you directly. Our refrigeration and freezer services come in handy when people show up with their load of groceries, and then poor weather keeps us grounded for a while. Something I am very proud of is our freight program, which is an iPhone app I had created for Alkan that allows you to track everything coming into and going out of camp. We had to utilize an iPhone app because there is no traditional freight system in the exploration world, where usually it is just a truck pulling up to a plane and dumping its cargo in the hold. With our system, the client can trace every step of the chain, from getting the rock out of the ground to getting it to their assay lab. They receive an email when we unload the item, and another one when it has been picked up. There are no additional costs for these services; we do not offer them because the customers demand them, but because we have the desire to make it as easy as possible for the client to get out there and do their exploration work.

**With transportation being known to account for up to one-third of operational budgets in the North, how does Alkan help their clients keep these costs down?**

We try to stay as flexible as we can, and that is one of the reasons we have the fleet that we do, so we can move one person or 19 people. If you call and say you have this project, but you do not know how many people it will be, I will say we can do your rotations on Monday afternoons, a quiet day, and I will give you whatever plane you need. We do not want a plane going out half-full, because that means you are spending a lot more than necessary on that flight, which then makes it that much more challenging for you to do what you need to do with your available resources. This is why we have the freight yard, where we tell our clients to leave any non-urgent supplies they need transported. If one of your passengers is a no-show, that means we have another 200 lb of payload, so we check the yard for your goods and put them on the plane; we make every effort to ensure that every pound of capacity is utilized. •

# Interview with Stephen Kerr

DIRECTOR, ENGINEERING, QULLIQ ENERGY CORP.

## Can you give us a brief overview of QEC?

Qulliq Energy Corporation began in April 2001 with the creation of Nunavut. It was originally known as Nunavut Power Corporation but changed names in 2003. Even though we are a relatively young company, our predecessors worked with energy generation in the NWT since 1948. We are solely owned by the government of Nunavut and generate, transmit and distribute all of its electricity. We are currently trying to increase our capacity and build up our engineering staff. QEC employs about 180 staff at the moment and cover a service area of almost two million square kilometers. The power is supplied through strictly diesel generation at 26 power plants in 25 communities. We cover the single largest service area in Canada and overcome many challenges related to climate, geographical location, and aging infrastructure.

## For potential new mines or exploration camps, is QEC tasked with providing power?

For the most part, exploration companies have independent power sources. If they are not impacting a community, they generate their own power. Legislatively, we have the right to

generate and distribute power within Nunavut. We are interested in what these companies are doing, but there is a lot of activity. At the present time, few of the major finds are in close proximity to an existing community, where the potential to supply the community and minesite are economically viable; this makes it difficult to tap into these potential energy opportunities. We have talked to a number of players regarding potential synergies, including a prospective mine outside of Rankin Inlet. Ideally, we can figure out a way to build a power plant near this community and take advantage of a mutually beneficial situation, that would be a win-win-win scenario for QEC, the community, and the developer. We cannot bid for power generation contracts, but we could go into a joint venture with another company and generate on their behalf. This is our core business and we possess a lot of expertise in this area.

## How is demand evolving and what is your strategy for dealing with this growth?

Demand in Nunavut is definitely growing faster than in any other part of Canada: we are experiencing growth of between 2% and almost 5% a year. From an energy perspective, that is quite large. We are struggling to keep up with this rapid growth. We have publicly indicated to the government that the infrastructure here is not going to keep up with the load growth. Our new aggressive capital program will replace the aging infrastructure with major upgrades and new facilities. 17 of the 25 communities have power plants at or near the end of their service lives, which means we must either expand the facilities or build new ones.

## Could you tell us about the potential for hydropower schemes here in Nunavut?

We have been actively investigating the hydropower potential in Iqaluit since 2005. We have identified potential sites within 100 kilometers of the city and have narrowed it down to the two best sites. As soon as the feasibility studies are finished, we are confident we will be able to begin construction. In about five to seven years, we should have hydropower in Iqaluit with a capacity of almost 20 megawatts.

We have also identified a number of other sites with potential to supply mines, but we must enter into a Power Purchase Agreement (PPA) with developers before we proceed in order to protect our ratepayers and shareholder. There is considerable potential around Iqaluit, but most of the other communities are too small which makes it difficult to justify putting in hydropower. There must be a resource-based industry there to anchor a project of this size.

## Would you look to IPPs for a funding solution?

I think the corporation is very open to IPPs and requested an IPP to supply wind to the territory back in 2003. They received a number of responses to this, but all of them were at a premium compared to diesel power. It is hard for customers to jump on something that is twice the price of what they are currently paying, so the plan ended there. People understand there is an environmental responsibility, but they have to be reasonable about costs. Diesel is considered "dirty" power in some respects, but both the resource and the necessary capital infrastructure are cheap and the technology is proven. •



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# Hydropower the Key to Northern Development

Jeremy Haile, P.Eng. - Knight Piésold Ltd.



## **Knight Piésold Consulting**

*Knight Piésold Consulting is an international consulting company providing comprehensive engineering and environmental services for the mining, power, water resources, transportation and construction sectors. Founded in South Africa in 1921, the company has expanded worldwide, with over 900 employees based in offices across five continents. Knight Piésold opened its first Canadian office in Vancouver in 1975, and currently employs over 200 people in Canada working on projects world-wide, including in Canada's remote north.*

## **Jeremy Haile – Principal Consultant, Knight Piésold Ltd.**

*Mr. Jeremy Haile has over 40 years of experience in all aspects of both large and small project development throughout the world. He acted as President of Knight Piésold Ltd. (Canada) from 1990 to December 2012, and now acts as a Principal Consultant and member of the Global Management Team of the Knight Piésold global group. He specializes in project concept development including all aspects of planning, environmental baseline studies, feasibility studies, investigations, financing, contractual arrangements, permitting, impact assessments, risk assessments and financial viability. His experience is associated with mining waste management, environmental remediation, hydroelectric projects and water infrastructure projects, with direct project involvement in North and South America, Southeast Asia, Europe and Africa.*

One thing everyone can agree on is the need for a reliable source of energy for any form of existence in the Canadian north. With the extreme cold and shortage of sunlight hours throughout the winter, energy for heating and light is of paramount importance. This becomes even more important for any form of mining venture where there are large power requirements to run the mine. To date there has been almost total reliance on diesel powered electricity generation for any development outside the electrical grids of Yukon Energy in the vicinity of Whitehorse and NWTP in the vicinity of Yellowknife, both of which are supported by hydropower. Diesel generation is expensive due to both the volatility of world oil markets and the logistical constraints involved in supplying and storing fuel for remote locations. In an ideal world it would be nice to be able to use some form of renewable energy, but obviously solar will not work in the winter months and wind power is unreliable and technically challenging in extreme winter conditions. Hydropower will, in the right locations, provide an economic alternative to diesel generation either as a diesel replacement in the summer months only, or as a complete alternative if storage can be provided. In addition, hydropower will result in a legacy asset that could provide cheap, reliable electricity to adjacent communities for many decades after the initial capital cost is paid off.

Knight Piésold has carried out a number of studies for Qulliq Energy Corporation (QEC) in Nunavut and mining companies throughout the north to identify potential hydropower facility locations that would serve as cost effective alternatives to diesel generation. Precipitation throughout the north is relatively low with much of it falling as snow. Rivers are therefore subject to extreme variations in flow from a short summer high flow freshet consisting mainly of snowmelt to very

low flows in the winter months. However, catchment areas can be very large and the general topography of the Canadian Shield and the region's glacial history means that bedrock is close to surface along most river valleys and steep gradients, waterfalls or rapids exist on many river systems. Potential sites for hydropower require the right combination of catchment area, river gradient, potential storage sites and proximity to the proposed development (i.e. electrical load). The suitability of sites for construction of storage dams to allow for winter generation will depend greatly on the environmental attributes of the potentially flooded area but in many cases this could be bare rock with the potential benefits far out-weighting any adverse environmental impacts.

Diesel generated electricity currently costs in the range of \$0.40/kWh to \$0.60/kWh and will vary depending on world oil prices in the future. Hydropower facilities in the north are obviously more expensive than ideal sites further south and could be in the range of \$10,000/kW to \$20,000/kW of installed capacity. A significant capital outlay is required to bring a hydropower facility into operation but the operating costs thereafter are very low. Typically the payback period against diesel is in the order of five years, with significant on-going savings for decades to follow. The environmental benefits will also include the elimination of greenhouse gas emissions from diesel generation.

Mining companies can be the vehicle for the development of new hydropower facilities and as the primary off taker provide the revenue to pay off the initial capital. Thereafter, the hydropower facility could be a major driver for increasing the ore reserves and hence mine life by lowering operating costs, and transmission lines could be used to interconnect remote communities with these legacy assets when mining is completed. •



Courtesy of Capstone



# The Service Sector: How to Build a Mine in Canada's North

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“You need to have a different mindset when working in the Canadian North, because it presents some very unique challenges. For example, to reach one of the Nunavut sites we were required to travel 150 km across the tundra in northern conditions to bring in everything; fuel tanks, food, machinery, spare parts, all of our materials. We realized that you need specialized expertise to work effectively in these remote areas. You need to be close to local communities and their collective knowledge. In those conditions, you must be proactive, and you have to be able to react quickly. You have to have people who are extremely resourceful, because you cannot just go to the store to get a spare part when something breaks. It can easily take a week to get a replacement, and when the working season can be only three to four months, that downtime is unacceptable. A lot of companies in the north think that they have to bring their contaminated soil down south to be treated, but we can bring our technologies to them, saving them the significant costs of transporting the contaminants.”

*- Eric Thomassin-Lacroix, General Manager,  
Biogenie (a division of EnGlobe Corp.)*

# Finance and Investment

## Armageddon or another day at the office?

The mineral industry has always been cyclical, yet recent years have been less of a circle than a confusing squiggle for junior companies. After the global economic crisis, during which the mining and exploration section bore a disproportionate amount of pain, mineral prices quickly rebounded and surpassed their previous highs, having a knock-on positive effect on junior company fundraising efforts.

Recently, however, this positive effect has diminished. Mineral prices, although still high, have decreased and settled, and continued economic uncertainty in some of the world's major markets, including a perceived slow-down in Chinese demand, has made investors unwilling to back exploration activities.

Compounding these difficulties is the sheer number of juniors competing for capital. Coming off a brief but giddy high, substantial numbers of newly formed junior companies are now finding that the easy money that motivated their creation is no longer there. This is perhaps nowhere more obvious than in the world's junior mining capital, Canada: with 1,671 mining issuers listed on the TSX-V, or 58% of the world's public-

ly traded mining companies (between the TSX-V and TSX), many have argued that in a market where raising capital is arguably the greatest challenge many juniors currently face, such a high number of listings may be cause for worry.

Yet not all experts are dispirited. "While it is certainly more difficult for juniors to raise capital in this market environment, there are signs of hope," said John McCoach, president, TSX Venture Exchange.

Considering that 90% of all global mining equity financings were done on TSX and TSX-V in 2011, making up nearly 40% of the world's mining equity capital, the TSX-V does not seem like such a bad place to be. The exchange is seeing more sources of financing coming its way than its competing markets around the world. "The reputation of the Canadian junior market has changed dramatically over the last couple of decades. This more positive perception is evidenced in the increase in institutional investor participation in our market," said McCoach.

The role that the majors should play in this current environment appears to be on the minds of many of Canada's juniors as well. "For the majors to grow and make a signif-

icant difference to their bottom line they need to acquire. For mid-caps it is more financially viable to acquire assets rather than to explore, leaving the juniors as the only companies carrying out exploration," said Hugh Bresser, president and CEO, Overland Resources Ltd.

Those who have been in the industry through a number of mining cycles understand these periods and what must be done to ensure survival through another. "Currently, the majors have few exploration staff; they are more focused on mergers and acquisitions. This worked when junior companies could secure exploration investment. The majors must now take a lead on some exploration for new deposits," said Raymond A. Hrkac, president and CEO, GGL Resources Corp., a veteran of the industry of over 55 years.

This activity has not, however, been reflected on the Canada-based TSX-V quite yet. "We saw a fair number of mergers and acquisitions in the last quarter of 2011... Even though we have not seen a significant level of mergers and acquisitions in the last few months, that could change quite easily," said TSX-V's John McCoach.

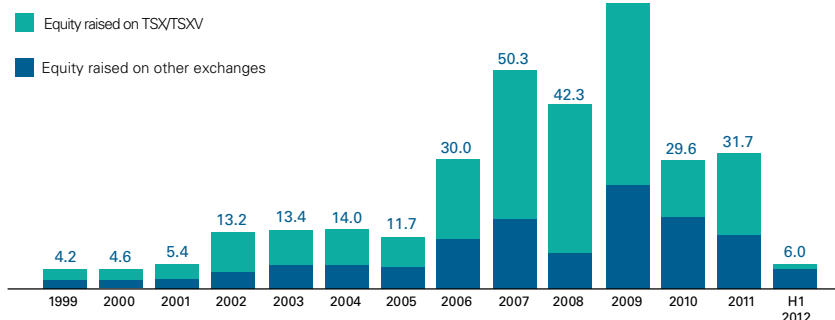
"I know it is a difficult time to access capital and liquidity is not what it was a year ago, but we have been through market cycles before and we know the market will come back... There will be a continuing demand for commodities and there is no better place to participate in that than in the Canadian mining companies," said McCoach.

While the market may not be at its peak, with junior companies especially feeling the investment pinch, the future of commodities and continued demand is extremely promising. "Companies that can hang in there and spend their money wisely maintaining and acquiring good unique properties with upside potential, will be successful," said William A. Taylor of Kestrel Gold.

"Remain encouraged, in spite of the current lull in the junior exploration market and their problems of raising capital on the markets, there are offshore investors looking at the resources of Yukon, the Northwest Territories, and Nunavut, to replace operations that have gone offline elsewhere around the world. There is tremendous resource potential in Canada's North," said Pearson from Nuna Logistics, who under the Nuna group of companies, have been involved in almost every northern mining project since the diamond industry developed in northern Canada. •

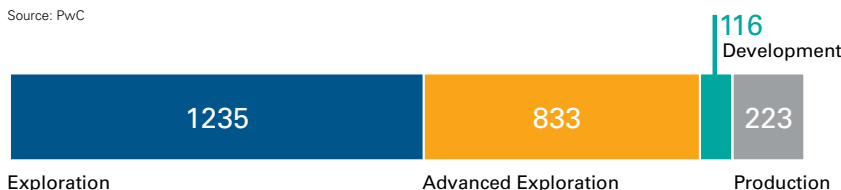
### Global Mining Equity Financing 1999 to 2012 ( C\$ billions)

Source: PwC



### Mining Companies by Stage of Project (TSX & TSX-V)

Source: PwC





# Interview with John McCoach

PRESIDENT, TSX VENTURE EXCHANGE

**With 1,671 mining companies listed on the TSX Venture Exchange, where are most of these newly listed juniors coming from, and how have we seen these numbers change over the past 12 months?**

The number of new listings on TSX Venture Exchange year to date October 31 is actually very close to what it was last year; the big difference is in the number of financings. The total dollars raised is off this year. While it is certainly more difficult for juniors to raise capital in this market environment, there are signs of hope: I saw a news release from Gold Standard Ventures Corp., who raised \$20 million through a 10 million share offering at \$2.

The mining companies listed on TSX Venture are mostly Canadian, or at least incorporated in Canada, with largely Canadian management. However, their operations stretch across the globe. We have seen seven or eight new international mining companies this year from places like Australia, Latin America and the United States.

**What kind of due diligence does the Venture Exchange undertake to ensure that market rogues are prevented from being listed?**

The entire Canadian capital markets community; not just TSX Venture Exchange and Toronto Stock Exchange; do a lot to ensure the integrity and credibility of our market. We have a team of 22 people that do nothing but investigate the backgrounds of all new market participants, be they officers, directors, large shareholders or investor relations professionals. I do not know of any other exchange in the world that is as proactive and thorough in the vetting process as we are. Our Compliance & Disclosure group continually monitors the companies' disclosure and continued listing requirements, while our List-

ings Department runs all of the transactions under a microscope. It is a system that I would proudly match against any other market in the world.

The reputation of the Canadian junior market has changed dramatically over the last couple decades. This more positive perception is evidenced in the increase in institutional investor participation in our market. I spend a good deal of time meeting with portfolio managers outside of Canada and the message I hear is that they invest with us with confidence. Most of them do not really distinguish between the junior and senior markets, instead focusing on whatever a particular investment is suited for them at the time. Of course there are risks with early stage companies, but we like to make it as safe a place as possible for speculative investments.

**There have been some predictions that there will be a lot of mergers and acquisitions in this current market; have you started to see this activity pick up on the market?**

We saw a fair number of mergers and acquisitions in the last quarter of 2011. I am actually rather surprised that we have not seen more in 2012. Given the market environment we are currently in, I certainly would expect to be seeing more mergers and acquisitions happening. Typically, in a cycle where the market is consolidating, and we are clearly in a consolidation cycle at the moment, you see more of this activity. Even though we have not seen a significant level of mergers and acquisitions in the last few months, that could change quite easily.

**Have you been seeing more interest in investors seeking security in gold, rare earth and strategic minerals, or uranium projects?**

We have a very diverse group of min-

ing and mineral exploration companies on both exchanges and given the price of gold in the last couple years, it is no surprise that many of them focus on gold. With the other minerals we tend to see varying activity levels. Uranium was very active a few years ago, but it is not as active in comparison to any other commodity right now and the same can be said for rare earths.

**What role do you see the TSX Venture Exchange playing in the evolution of Canada's mining market?**

My vision for the exchange is to grow our core business of natural resources domestically, while also attracting international companies to our market. We aim to grow our presence internationally, so that we can support and facilitate growth for our companies around the world. Having said that, one of my goals is to further diversify the listings beyond the natural resources sector. I believe we can build on our successes in helping hundreds of junior natural resource companies grow to big capital companies in Canada.

**Do you have a final message for juniors and investors?**

TSX Venture Exchange and Toronto Stock Exchange are here to help them. I know it is a difficult time to access capital and liquidity is not what it was a year ago, but we have been through market cycles before and we know the market will come back. Canadian mining companies are resilient. They will be fine. When you consider the collective knowledge of the analysts, the investment bankers, the lawyers and the accountants, we have an incredibly strong and attractive public venture capital community here in Canada. There will be a continuing demand for commodities and there is no better place to participate in that than in the Canadian mining companies. •

# Engineering, Consulting and Construction

## Uncovering the North with Innovative Solutions

The harsh conditions of the North, in which ice road infrastructure changes with the seasons and temperatures can fall to minus 60° C, requires not just geologists of unusually tough dispositions to find deposits, but an unusually experienced and capable support network to help develop them.

Although the service sector is often considered the backbone of the mining industry no matter what its location, in Canada's territories the importance of finding the right service partner is paramount; a company's ability to provide the right service in a short seasonal timeframe under difficult conditions can make or break a project.

Canadian miners, of course, are known as some of the most adept in the world. Engineering, procurement and construction management (EPCM) firms and those that support construction services are no less talented, and are pioneering innovative solutions to the North's particular challenges. The most successful service companies have started by recognizing that Canada's territories need their own solutions, rather than simply borrowing and importing from other jurisdictions.

Many of these companies are ascending to the North from the more established southern destinations of British Columbia, Alberta or Quebec, as the growth potential of this region becomes clear. "As the mining and mineral sectors have become very prominent in Canada's North, they have become more of a focus for us," said Daniel Maguire, CRM, senior vice president, natural resources, mining practice leader, Aon Reed Stenhouse Inc.

Yet the peculiarities of the North mean that local competition, used to the ex-

treme conditions, remains strong. "We are seeing Canadian companies moving in from the South, as well as international companies coming in, but we have been here for 25 years. We are familiar with the climate, the logistics, the players involved, and the deposits," said Gary Vivian, president, Aurora Geosciences; the only company that offers professional services in geology and geophysics based and operating in the North.

Local players have moved to fill gaps that outside players were slow to exploit: "we began by manufacturing core boxes; we heard that companies were having to go down to British Columbia to get them, and the demand was just too high to keep up in Yukon," said Alan Lebedoff, CEO, ALX Exploration Services Inc., a young Yukon entrepreneur who has seen his business grow tenfold and now offers a number of other key support services to the industry with a vision to move into northern British Columbia and Alaska.

In the Northwest Territories, similar entrepreneurs have now reached a point where, having filled the initial gap, can now start to look abroad. Mongolia appears to be a common international skills export destination.

Ivo Mitev, owner and general manager of Midnight Sun Energy Ltd., explained that "our expansion has included exporting our specialized equipment for diamond drilling to Mongolia, Australia, and various locations in South America. A need was identified in the diamond drilling industry for a generator that was light, extremely portable, and robust. A prototype was built with skids to enable towing by a snowmobile. The generator was designed to accommodate easy

transportation by helicopter or airplane." "We have taken the lessons learned in northern Canada to other countries, for example Mongolia where the winters are just as harsh as Canadian," said Robert C. Stanlake, president, mining and metals, of AMEC, the international firm who provided EPCM services for Canadian diamond mines including Ekati, Snap Lake and Diavik.

"We have expanded into Mongolia by setting up a majority Mongolian-owned company; our past Nunavut experience is good preparation for the challenges faced in Mongolia," said Grant Pearson, vice president business development, Nuna Logistics Limited, Nuna Group of Companies.

Pelly Construction Ltd., who brought their Yukon expertise to Antarctica for an infrastructure project for the British government in the past, also understands the intricacies of Canada's North. "One of Pelly's most challenging projects was building some of the infrastructure for tailings for the Faro mine, which at the time was one of the biggest lead/zinc mines in the world. We built two large dams; special care had to be taken as there was intermittent permafrost. A stream had to be relocated from its original valley up onto the hillside in a permafrost area, and to avoid the permafrost thawing most of the excavation work was carried out in freezing winter conditions. To insulate the permafrost it was back-filled with a 4 m thick gravel thermal barrier. This work was carried out 30 years ago, and is still in place," said Keith Byram, president, Pelly Construction.

Others have brought their international expertise and instead applied it to the North. "Our underground planning tools

are a de facto standard for the design and scheduling of underground mines using the sub-level cave and block cave mining methods around the world, and are used by mines of this type in northern Canada. Without sophisticated planning tools, it can be very difficult to accurately calculate the development timing and production build-up for caving operations," said Perry of CAE Mining.

These harsh conditions require absolute precision, not only for budgetary reasons, but safety as well. "From an engineering perspective, we have to design projects to ensure they are built to last in the climate up here. In a remote location, you cannot be 99% sure about your design, because that 1% of uncertainty or error can ruin your budget for the year," said Steven Meister, regional director, Arctic, for Williams Engineering

Canada Inc.

Those with extensive experience in the North also have a deeper understanding of the intricacies involved with design and construction. "Northern Canada has difficult soil conditions: it is a frozen desert with saturated soils and when heated the ground often becomes unstable; this has to be accommodated in foundation design," said Duane Gingrich, vice president, projects and operations, mining and metals AMEC.

Adding to the challenge, certain factors of northern mining are in an almost constant state of flux. "The type of permafrost up here is very susceptible to temperature change because it is hovering just below freezing. For the mining companies, the permafrost shift is certainly a challenge," said Shaun Rudolph, president, Cobalt Construction Inc.

These challenges demand adaptive

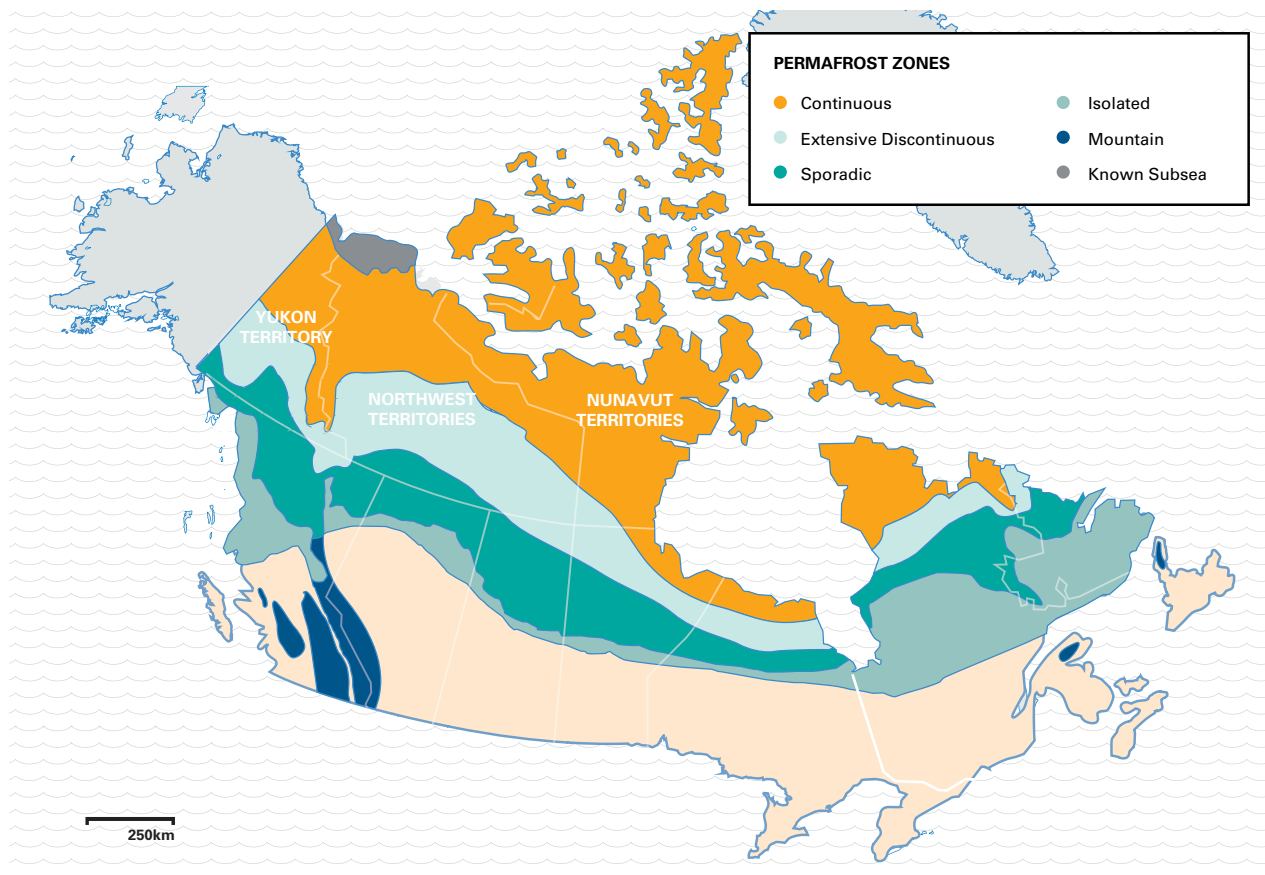
solutions. Brent Thompson, senior vice president, mining and minerals, Tetra Tech said, "climate change, especially in the North, necessitates the evolution of new technology to keep pace with these changes, such as new technology for tailings dams, winter roads, and design solutions accommodating the reduction in permafrost level."

The vast majority of new mine projects come with a utility or transport infrastructure element but in the North, the weighting is likely to be far higher. "Infrastructure components of a mining development in the North can account for 50% or more of the capital expenditure of a project," said Dale Clarke, senior vice president, global mining and metallurgy at the 30,000 person strong EPCM firm SNC-Lavalin. For large, multi-disciplined engineering houses such as SNC-Lavalin, this represents a

*continued on page 131*

## Permafrost Zones in Canada

Source: Atlas of Canada



# Interview with Bridgette J. McCaw & Devon R. McCaw

OWNERS, MCCAW NORTH DRILLING AND BLASTING LTD.

## Can you tell us bit about the history of McCaw North Drilling and Blasting in the NWT?

**Devon:** McCaw North Drilling and Blasting Ltd started a piling project at the beginning of 2008 at the Diavik diamond mine. Bridgette and I moved to the Northwest Territories, partly as a result of other projects but went into Project agreements with De Beers at Snap Lake and Newmont at Hope Bay. Our small office kept growing to the where we now have 21 drills. Running the office has needed to be a team effort, and this is where we have been successful. The key has been setting project goals, maintaining schedules and doing all our jobs safely.

**Bridgette:** When we first started the business, it was just myself, Devon and Ray working from our dining room table. McCaw North Drilling and Blasting now has around 80 active employees, which is testament to the rapid growth we have experienced in the last four years.

## As a company, how significant is mining to your overall business?

**Devon:** Our percentages depend on the activity in the industry, though today, 70% is mining; the rest is Oil and Gas, residential, commercial, Quarry and Road work.

## Are there any particularly challenging or unique projects you can tell us about that would highlight the specific challenges of operating in Canada's North?

**Devon:** The Snap Lake piling project in 2010 was very difficult. We started a curtain grout project that was five meters from Snap Lake, so if anything leaked into the water they were going to shut the whole Project down; this was all on our shoulders. We were drilling primaries, secondaries, tertiary's and were grouting with all of our equipment covered in tents

to avoid oil leaks. We put environmentally friendly oils in our machines. Our closest holes were actually five meters from the water, but we were successful in maintaining a green operation and completed project on schedule.

## The North is a very unique environment; how do you manage this in your operations?

**Devon:** In the north, you need to almost specialize equipment, and you need to maintain it. For example, Shane does special wraps on the drills – without the years of experience these guys have, you can not operate in these conditions. At Snap Lake, we had to build tents onto our equipment to keep it warm as we drilled in minus 60 degree Celsius weather. In such remote places, you can not call overseas for parts, so our shop has spare engines and key components for equipment – this means that when there are issues, it is only an overnight trip to site. We have availability to 60 or 70 pieces of equipment, which we source from Germany, Finland, Rocky Mountain House, BC and Chicago. Equipment from Europe can reach Montreal in a weeks, or Vancouver in six weeks. At Hope Bay, we had no way of transporting the drills by road, so we needed to have them prepared in the Hercules. Our brand new Sandvik DX-800's drills were trucked to the north, and brought over the Mackenzie on ice roads. We tore them apart and used a crane to put them onto the plane.

## What are your competitive advantages that would set you apart from the increasing competition in the North?

**Devon:** Building a core and loyal team in your company is critical. The company has a program where we track our employees safety and incentive hours, and give them gift cards and bonuses for maintaining cer-

tain high standards we set, for example.

**Bridgette:** Our track record, with regard to safety and completion of projects on time and budget, is very good. Furthermore, as residents of the Northwest Territories, Devon and I are often able to obtain preferential bidding status, which gives us an advantage over non-local companies. People in the north like to buy northern, and promote northern owned and operated businesses.

**Devon:** McCaw North Drilling and Blasting has set up aboriginal joint ventures with our company. Having aboriginal content is key to some mining projects. Right now, we are working on a big training program for local aboriginals to help ensure local skills development and hires. We have also been quite successful at competing against the competition; last year there were three drilling and blasting companies in the north, one of which, the McCaw's Group bought out this year.

## Can you tell us more about these training initiatives you mentioned?

**Devon:** We have a certain method of training people in house, which has proved successful. You have to start from the bottom and work your way up; there is a certain number of hours you must have done before you can move into new positions. We are strict about this because a mine is a whole new world when you enter it. It takes time and money to get someone used to it and trained correctly. We want our clients to know they are getting safely trained personal.

## What is your vision for the future?

**Devon:** Our vision is to be a safe, environmentally friendly company that remains in the north and continues to work efficiently.

Bridgette: We are also able to operate all over Canada, not only the north, and will continue to pursue this. For example, if we got a call from Newfoundland tomorrow, we could go and work there.

## Do you have a final message?

**Bridgette:** Our Motto: Using our experience and expertise to deliver the best results in the drilling and blasting industry with a positive impact on the health, safety and environment in the communities in which we operate. •

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significant opportunity. "We can bring teams from our other sectors such as infrastructure and power to support," observed Clarke.

The infrastructure-heavy nature of mining in extreme locations such as the North provides a gateway for companies not traditionally associated with mill or geotechnical design.

The 45,000 person EPCM firm AECOM Ltd. "is the world's leading infrastructure company covering rail, roads, airports, ports, water distribution, water treatment, power distribution and transmission" and its looking to the North as part of its efforts to build its mining practice in the Americas. "Six years ago the company decided to diversify; mining and oil and gas are the two growth areas. Our diversification started in Australia with mining where we have built up a considerable business, and have now extended this mining service offering in North America," said Lou Bruno, vice president, mining, AECOM. "We are leveraging our infrastructure ability to accommodate the needs of exploration companies who are carrying out mining projects in increasingly remote areas that have no infrastructure," Bruno said. Engineering capacity has been in a short supply globally during the commodity super-cycle and smaller miners have often struggled to secure EPCM contractors on terms that they consider acceptable. Bruno, however, looks to target these companies along with the majors such as Rio Tinto and BHP who the company already services: "AECOM provide the client with a full service offering covering the whole lifecycle of a project from permitting and social issues through the early studies, and on to the execution stage; a service offering especially appreciated by the junior companies. AECOM's environmental service offering gives it the opportunity to enter at the early phase of a project." Yet the ability to provide such services and technologies is only half of the challenge; providing them to the sites themselves also requires unique solutions, often with some local help and guidance. "While most of Xstrata Technology Canada's key technologies are built abroad, every time we have a pro-

ject in the North, the equipment must be assembled on the ground, as close to site as possible. We often seek local skills to help fulfill these gaps, particularly in very remote locations," Greg Rasmussen, process manager, Xstrata Technology Canada.

This has also meant in some cases adapting current technologies to northern mining operations, one challenge of which can be communications. "Prior to our involvement in underground mining, the systems were a completely different model, brand and type of equipment and were unable to communicate to the surface, which created logistical and safety issues; [we] recommended a seamless communication system between the two locations. Open-pit mining presents communication challenges; the deeper the mine the more of a shield is created to communication at surface, and [we] created a solution providing booster systems to allow operations in previous non-communication areas," said Danny Cimon, president of Danmax Communication Ltd., a company that deals with security and telephone systems. These modifications also extend to the software used to design mining operations. "An example of where modifications have been made is with our tools and consulting used to predict what will occur into the future on the mine sites: when to drill; what explosives to use; and what fuel usage is required.

Predicting when it is going to be used then translating that into when it is going to be delivered via ice roads that are only open for three months of the year is a dilemma; our software has been adapted to accommodate this ice road anomaly," said Fraser Rowe, general manager of Runge Mining (Canada) Ltd. "In the North, you need to almost specialize equipment, and you need to maintain it. For example, [our employees create] special wraps for the drills; without the years of experience these guys have, you cannot operate in these conditions," said Devon R. McCaw, of McCaw North Drilling and Blasting. "At Snap Lake, we had to build tents onto our equipment to keep it warm as we drilled in -60°C weather," McCaw said.

"Heating equipment has to be applied

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Website: www.mccawnorth.com

# Interview with Scott Perry

GM NORTH AMERICA, CAE MINING INC.

**Established in 1947, can you give us a brief overview of CAE Mining in Northern Canada, and the importance of the region to CAE Mining globally?**

The mining division of CAE was established in 2010 through the acquisition of geology and mine planning systems provider Datamine, and soon after with home grown Canadian geological data management company Century Systems Technologies in 2011. These businesses we have been dealing with customers in Northern Canada for over 15 years. As a significant mineral producing region, CAE Mining continues to develop its product and service offerings for Northern Canada. Service is provided from a major hub in Sudbury, Ontario supplemented by staff in Vancouver and Dawson Creek.

**How have we seen this business grow in 2011 and what kind of growth can we expect to see in 2012? What were the main factors that drove this?**

Our business in the region has continued to grow in recent years. Exploration expenditure in the combined Northern Territories has continued to increase and this drives demand initially for our exploration data management products and services. As these projects move through to resource and reserve evaluation, our geology and mine planning products and services experience a follow-on demand.

**We know that CAE Terra is one of your unique programs, and you also offer everything from mine planning to exploration services, but can you tell us about which would perhaps be your most sought after program from your Canadian Northern mining clients?**

Our exploration, geology and mine planning products are well established in the Northern Canadian mining client base. More recently CAE Mining has developed extensive training systems including e-learning tools, instructor-led training and equipment simulators for the training of operators. These products represent a step-change in the tools available to train new operators and enhance the performance of existing operators. We believe these products and services

can play a big role in the engagement and training of indigenous workers as the minerals industry expands in Northern Canada.

**Have you found that due to the North's unique operational environment you have had to adapt or adjust any of your technologies to better suit the conditions?**

Our planning tools are applicable for any mining environment, mining method or commodity type, and are proven across a great variety of mining operations around the world. For our simulator offerings, CAE Mining has included a range of climatic conditions that can be interactively set and adjusted by the instructor, including snow along with wind, rain and a variety of lighting and visibility conditions.

**Are you currently developing any new technologies that would be relevant for these Northern clients?**

We are actively working on training methodologies that incorporate the latest technology and are suited to training for remote locations.

Across the board we have found that technologies aimed at solving specific pain points for customers are enthusiastically embraced. Quite often we engage with lead clients in a collaborative manner in the late stages of development to ensure our solutions meet real-world needs. This approach accelerates adoption of technologies in the broader industry.

**Can you tell us about some of your key clients and projects in Canada's North where your technology has been engaged?**

Our underground planning tools are a de facto standard for the design and scheduling of underground mines using the sub-level cave and block cave mining methods around the world, and are used by mines of this type in Northern Canada. Without sophisticated planning tools, it can be very difficult to accurately calculate the development timing and production build-up for caving operations. Our solutions provide a very fine level of detail in the modelling of development tunnelling and ancillary activities in caving



operations. This allows very accurate schedules to be developed even in long range planning, which is an important driver of cost and revenue profiles and resulting project financial metrics.

**Many of our interviewees have stated things such as logistics and skilled labor as key challenges in the North. Have these proved challenges to you as well?**

Logistics are certainly a challenge, but modern communications are helping with this and we do a lot of live interaction with customers using web-based tools.

Skills and training in general is a challenge in the mining industry, and CAE Mining has been investing in new software tools that provide workflows to guide users, as well as improved training materials that make the process of learning more efficient.

**How do you envision the mining sector in Northern Canada evolving over the near term and how would you like to see CAE evolve with it?**

As exploration data becomes available we expect a series of potential projects to emerge where we will have an opportunity to work with companies on feasibility assessments. A percentage of these may move into development and production, which will require not only our planning systems but also our equipment operator screening, selection and training technologies and services.

**Do you have a final message for our readers?**

With a team of over 130 experienced geologists, mining engineers and training experts, CAE Mining is well placed to assist companies at any stage of a mining project from exploration to production. We take a collaborative approach with customers and embrace opportunities to increase efficiency and safety in mining operations. •

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to the water for drilling to prevent freezing; and mobile equipment has to be of the correct category for extreme cold conditions," said John A. Versfelt, chairman, president and CEO, Cabo Drilling Corp. Chad Koshlay, technical services representative at explosives manufacturer Dyno Nobel Inc., agrees with the need to adapt.

"We have modified our detonators and packaged products to accommodate the extreme cold conditions of the North. The new system we are promoting combines improved loading techniques and Titan® XL 1000, which has effectively eliminated the difficulties harsh permafrost conditions at Meadowbank present, but the blasting requirements differ at every operation. The local geology at each mine differs greatly across regions; at the diamond mines, the waste rock is a hard dense granite, which hosts the softer spongier kimberlite ore, for example. These geology changes require different approaches to blasting." This kind of care must also be shown to other types of equipment in the field. "[Problems arise] when systems are

mothballed and become frozen; re-starting them can be an issue with melting ice. Danmax' recommendations to the client would be to remove the communications equipment for the period of inactivity," said Cimon.

For those exploring, developing, or

mining in Canada's North, the range of potential obstacles can be debilitating bewildering. The established and developing service sector is key to overcoming the technical issues and sideline problems distracting from a focus on the mineral potential. •

## Mapping and Geoscience

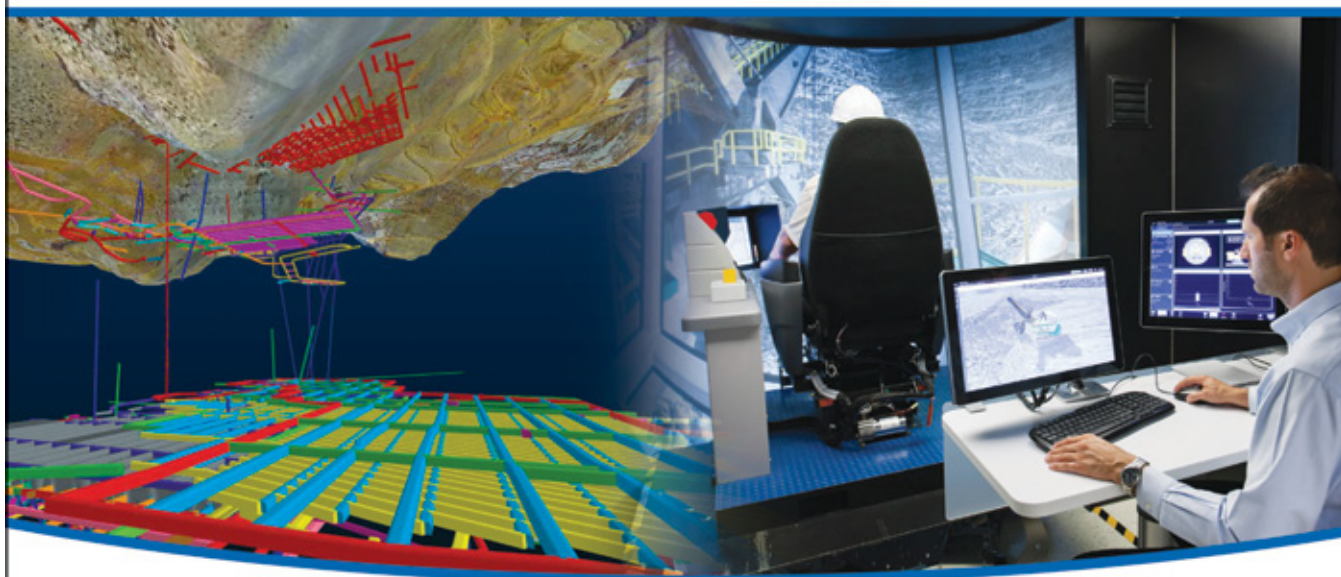
Canada's North still suffers from a lack of adequate surveying information. While Yukon is the most advanced of the three territories, there are still great voids in this information vital to the industry which must be tackled in order to further develop Canada's North.

"In the early 2000s it was identified that 80% of Nunavut and around 60% of the Northwest Territories were geoscientifically unmapped, and Yukon's quality of mapping was inferior to that of southern Canada," said Pierre Gratton, president and CEO of the Mining Association of Canada. "Geoscience is one of the basic building blocks of the minerals economy; new maps attract junior exploration companies. The lack of geoscience has been one of the reasons why mining growth in the North has been limited."

The matter is being addressed. Donna Kirkwood, director general, central and northern Canada branch, Geological Survey, Natural Resources Canada, said: "In some parts of the North, there were out-of-date geological maps and information; these were prepared by Geological Survey of Canada (GSC) in the 1950s and 1960s, and [these maps were in many cases] unreliable when deciding where to commence a northern exploration project... GSC initiated the five-year \$100 million [Geo-mapping for Energy and Minerals (GEM)] program in 2008 to carry out a survey primarily of the three northern territories and the northern areas of the provinces, and within these regions identify high-priority areas where we felt the geoscience was not up to modern standards and there was a good resource potential for mineral and oil and gas resources."

The program is due for completion by March 2013.

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# Interview with Gary Vivian

PRESIDENT, AURORA GEOSCIENCES LTD.

## Can you give a brief overview of Aurora Geosciences?

Through 25 years of innovation and adaptation in the face of the North's profound challenges, Aurora Geosciences has carved out its reputation as true Northern experts. We are the only company offering professional services in geology and geophysics that is both based in the North and operates across the North. With offices in Yellowknife, Whitehorse, and Juneau, we deliver applied geosciences and exploration support services with innovative drive. Our client base covers companies and governments engaged in mineral exploration, oil and gas exploration, and engineering. We provide in-field data processing, plotting, and computer-assisted interpretation for time critical exploration projects; offer the full complement of geophysical instruments, data processing equipment, camps, and exploration equipment adapt-

ed for Northern operations; and can operate up to 18 geophysical and/or geological field crews on projects across the NWT, Nunavut, Yukon, and Alaska. Our range of specialized services, experience, and equipment means that whatever your project type or scope, we have the capabilities and expertise to make it a success.

## What are some of the key challenges you have faced working across Canada's Northern region?

The most interesting challenge over the last 20 years has been the permitting process and within the last five to seven years, it has become much more difficult. There are some significant issues between the federal government and First Nations in regards to unsettled land claims. Industry has been used as political pawns by delaying the permitting process. Hiring can also be a problem in the small northern commu-



nities. There often is not a lot of capacity to do work. This becomes a real problem when you commit to hiring locals and the skills are simply not there.

## Coming from geological backgrounds, what are the unique characteristics of Nunavut, the NWT, and Yukon?

Geologically, NWT and Nunavut are very similar. There is a high portion of Precambrian/Archean/Proterozoic terrain, whereas the geology changes significantly in the Yukon. The rocks are much younger there, with far less Precambrian stratigraphy. The deposits are different as well and this requires geologists and geophysicists with different skill sets.

## Is it fair to say that the NWT/Nunavut is lacking in terms of geological and geophysical mapping?

Yes, and the reasons are primarily cost. The NWT itself is fairly well mapped, but Nunavut is lagging behind due to the level of remoteness. Some mapping responsibility has to fall on the industry but it is difficult to expect industry to map large tracts of land when there might not be any return on their investment. This needs to be a government responsibility. As federal government funding has dried up, regional mapping has become predominantly a territorial or provincial government responsibility and in some cases working with industry. Lack of infrastructure has driven costs very high. For example, there are roads to resources which have been established in all, or most, of the southern provinces but none of this has occurred in the NWT or Nunavut.

On programs where the territorial government focuses on mapping, the emphasis is on lithology and structure, mainly ignoring the economic geology focus, which is certainly a concern. •

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# Interview with Clem Pelletier

CEO, RESCAN ENVIRONMENTAL SERVICES LTD.



## What is the history and main milestones of Rescan Environmental Services Ltd. in northern Canada?

Rescan Environmental Services began working in the Northwest Territories in the 1980s, working on projects for BHP Billiton and eventually took on the EKATI diamond mine project in 1992, carrying out the first licensing and permitting of a diamond mine in Canada; our relationship with EKATI is still ongoing. In 1994, on the strength of the EKATI project, Rescan opened an office in Yellowknife, Northwest Territories. Other project locations have included Nunavut: the Bathurst road and port project, and the Hackett River, both for Xstrata, as well as the Back River project for Sabina Gold and Silver Corporation, as well as the Courageous Lake gold project for Seabridge Gold. The diamond discovery at EKATI was a major factor in Rescan's expansion in northern Canada; then the discovery of precious metals in Northwest Territories and Nunavut continued Rescan's expansion, with gold and silver being very attractive commodities. We have had no great historical involvement in Yukon, but now have a significant project with Indian and Northern Affairs Canada (INAC) on a contaminated abandoned mine-site.

## Can you talk us through your engagement with the key BHP EKATI project?

Initially, Rescan had the challenge of convincing Canadians that there were diamonds in Canada. Former Canadian prime ministers, Paul Martin and Jean Chretien, championed diamond mining in northern Canada, but when the EKATI project was proposed there were no regulations or experience on diamond mining in Canada. A field investigation was made of diamond mining in Siberia where at the time there was little environmental control, a premise that would not have been acceptable in Canada. Rescan led the way in the north on environmental effort to allay the fears of First Nations on the size and perceived footprint of the EKATI project. It was an advantage to have BHP, the largest mining company in the world, as the initiator of the

project. Most of the kimberlite pipes at the EKATI project are underneath a lake, which has meant winter exploration through 1 m plus thick ice; a very unique project.

## Are there any unique regulatory environmental issues working in the Northwest Territories and Nunavut?

The Northwest Territories and Nunavut have many thorough regulatory environmental controls; both jurisdictions are promoters of openness and transparency, accompanied by commitment to and necessary consultations with Aboriginals and Inuit to secure their support. These negotiations include impacts and benefits agreements, social and economic agreements with the Territory, and environmental management agreements with the Canadian federal government. The biggest challenge of working in the Northwest Territories and Nunavut is that the authorities do not appear to appreciate that time is of the essence; processing times currently take too long. Rescan has otherwise been very impressed with the north's biological productivity and its very sensitive environment. A majority of the water is practically distilled water because of permafrost; much of the water that is on the surface is high quality rainwater, where any minuscule impact is easy to measure. Of particular concern, if the permafrost is damaged, there will be a clear degradation of water quality.

## Do you think mining companies moving into Nunavut and the Northwest Territories are aware of, and respectful of, the unique and fragile environment?

For most mining companies it is a wake-up call when they enter Nunavut and the Northwest Territories; their initial reaction questions why environmentally people care about these areas as they are so remote. There is a quick realization that Aboriginals and Inuit do care, and the environment is harsh, but sensitive, with a high and rich bio-diversity.

## Can you outline Rescan's CSR initiatives for the north?

Rescan is a contractor and it can predominantly endeavor to influence its clients to leave a legacy once the mines have closed. For example, with the diamond mines, a socio-economic committee was established which had a focus group looking at the affect of hiring staff with the commitment to hire 40% aboriginal staff; this was achieved by training. Rescan supported this initiative in the field by training of Aboriginals and Inuit; this training will leave a legacy of a skilled labor force, enabling Aboriginals and Inuit to move on to other mine sites. We have also found that within Rescan it is essential to retain staff that have the traditional and scientific knowledge to engage with Aboriginal and Inuit groups.

## Has the lack of laboratories in the north been a challenge for Rescan?

Rescan have found it a challenge to handle and expedite samples to laboratories in Vancouver. Two laboratories opened in Yellowknife, but were not well supported by the mining industry due to contractual arrangements with laboratories in Vancouver and Canada's north still lacks sufficient laboratories.

## What is the vision of Rescan Environmental Services in northern Canada; and do you have a final message for the readers of Engineering & Mining Journal?

Rescan's vision is to expand the Yellowknife office, utilizing local, talented staff that can service our clients' needs; our employment commitment to First Nations will continue. We currently have an \$8,000 annual scholarship to promote young people to enter the environmental business, which could be extended to Yellowknife. The big issue that projects in the North must understand and appreciate is to have respect and sincerity in discussions with local communities, and to leave them with a positive legacy. •



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# Interview with Robert C. Stanlake & Duane Gingrich

PRESIDENT, MINING AND METALS & VICE PRESIDENT, PROJECTS AND OPERATIONS, AMEC

**Can you give a brief overview of AMEC's mining presence in North America; and what percentage of your operations are currently concentrated in the North?**

**RCS:** Over the last year, AMEC has undertaken studies of the Mazenod copper-gold project and the Wolverine polymetallic mine in the Northwest Territories; the Selwyn lead-zinc mine in the Yukon; and the Mary River iron-ore project on Baffin Island in Nunavut. Since the 1990s, we have provided engineering, procurement and construction management (EPCM) services for Canadian diamond mines including Ekati, Snap Lake and Diavik, as well as the Red Dog lead-zinc mine and Pogo gold project in Alaska. We have also completed studies of dozens of northern mining projects.

AMEC's mining model globally is resource evaluation, mine planning, engineering & design and project & construction management. We have a front-end group of mining engineers, resource geologists, process engineers, and geophysicists who are involved in projects at a very early phase, and will advise clients on drill spacing for drilling programs. If the project is economically viable for the client, we will maintain our presence to carry out an EPCM (engineering, procurement and construction management) project and build the mine.

**What were some of the key or unique challenges faced in your northern projects?**

**DG:** AMEC had early involvement in the De Beers Snap Lake project carrying out feasibility studies and looking at the economics of the project for the junior company who initially owned the property. De Beers took over the project having the capital to carry out mine development which we were instructed to service from detailed design right through to plant operation commencement; we continue to have a maintenance

presence at Snap Lake mine. The logistics were the key challenge of the project; there was a window of only 100 days to transport-in a year's worth of supplies via an ice road, coordinating with three other mines for space on the road. What fails to be delivered has to be flown-in. The second year was very challenging; we had the shortest ice-road on record of six-weeks duration. To compensate AMEC worked with the other companies in the area and between us commissioned Hercules airplanes to fly in equipment during the summer. Further challenges would be securing sufficient skilled labor, short summers and long, dark winters.

**What are some of the unique characteristics of mine construction in the North?**

**DG:** Northern Canada has difficult soil conditions: it is a frozen desert with saturated soils and when heated the ground often becomes unstable; this has to be accommodated in foundation design. The frozen ground along with rock outcrops often make standard designs for burying piping and cable unviable. Due to the remote location all infrastructure – housing, water supply, sewage, power supply, heating supply, etc – must be established prior to the primary construction work can begin. A safe living environment for both construction and operations workers must also be built with an emphasis on creating a socially desirable environment in what is a remote location. Although projects located in other northern climates may have similar characteristics, these conditions coupled with the complex logistics make the Northern Canadian projects very challenging.

**Have you engaged with Aboriginal corporations in Canada's north?**

**DG:** On virtually all of our projects we engage with the Aboriginal community and workers in acknowledgment of our client's contractual obligations with the Aboriginal groups. Aboriginal engagement is an im-

portant aspect of any project, not just in the North

**RCS:** AMEC has a training and development group based in Vancouver who has been involved in developing on-site training programs including some for Aboriginal workers, part of which is building a local capacity for construction and for on-going operations of the mines once they are built.

**How does the regulatory permitting and processing framework of the three northern territories compare to other mining jurisdictions you operate in?**

**RCS:** The regulatory requirements for environmental and social permission to build a mine are very similar no matter where you are in the world. There is nothing unique about Northern Canada. There is a special division of our corporation called AMEC E&I (Environment and Infrastructure); it has a 6,000-strong global workforce, a proportion of which assist in all mining regulatory permitting and processing procedures globally for companies. AMEC E&I has supported permitting for a large number of Northern Canadian Projects.

**DG:** The local permitting group is based east of Vancouver in Burnaby. We work closely with them on projects on the permitting-side. They will often carry out the initial environmental assessment and geotechnical studies and perform permit support work.

**RCS:** On occasions we are introduced to a project by the permitting group who is involved with a mining client working their way through environmental base-line studies, presenting us with a front-door business opportunity

**What is AMEC's vision for forward operations in Canada's North?**

**RCS:** The North will always be important to AMEC as our experience there provides a differentiator in the market. As a world-wide organization we will be looking at specific services to the industry globally, particularly underground mining development where we feel the future of the mining industry lies, as open-pit mines are being depleted. Exploration has not identified any economic open-pit mine alternatives; any exploration findings for high-grade ores are now deeper situated requiring underground development. Today's technology for underground mining facilitates mine production rates equivalent of an open-pit mine. •

# Interview with Greg Rasmussen

PROCESS MANAGER, MINERAL PROCESSING, XSTRATA TECHNOLOGY CANADA



## Can you tell us about Xstrata Technology Canada's history in Canada's North?

In March 2009 Xstrata Technology Canada officially opened our office in Vancouver from which we run operations across the globe, though this office is predominantly focused on North and South America. We are seeing increased interest in energy-efficient technologies and methods in particular, which are extremely relevant to northern Canada. The further north you go, you see power sources predominantly turn to diesel, requiring more efficient technologies.

There are two projects we are currently working on in Yukon where there is potential to engage our Jameson Cell technology which is efficient, low-grade, low-power flotation technology. This process also engages fine air bubbles, intense mixing, and efficient froth washing to ensure superior grade concentrations. It is also very easy to install, it ensures high throughput and has proved ideal for circuit expansions. In Nunavut, we have been engaged since 2010 where we are working for an engineering firm on a project that is at its prefeasibility stage for their eventual copper-lead-zinc mine.

## Will Canada's North continue to be a focus for Xstrata Technology in the future?

Yukon was historically quiet for Xstrata Technology Canada, but we have started to see growth and expansion there with many more clients seeking efficient technologies. We currently see many projects at the pre-feasibility and feasibility stages and have been engaging more clients with further developed greenfield and brown-field projects as well. Northern Canada has been slower to grow than southern provinces, but we believe we will see this activity start to pick up in the North. We are not focusing on one particular territory; we follow all potential clients.

## What are some of the key technologies

## that Xstrata Technology Canada engages?

Xstrata Technology Canada is actually a fairly new branch of Xstrata Technology and develops all of its own technologies. IsaMill is one of our key technologies – it is a fine-grind technology, which is also energy efficient grinding technology and is used predominantly in base metals and PGM operations but is also used in any other mineral process application. These tailor-made technologies are developed within the company to meet a certain application required in the mining process, whereas our competition tends to create more general technologies. 90% of our business is outside Xstrata. Another strength we have is that all of our staff come from operational backgrounds and understand what our clients are looking for.

## Have you had any requests for technology from clients that would be unique to northern Canada?

Xstrata Technology Canada has found that in the North our clients tend to be more focused on the footprint they are using and leave behind as opposed to requiring unique technologies.

## What are some of the key challenges you have found operating in Canada's North?

Challenges are usually related to access to materials that are easily accessible in the southern provinces. For example, when you must use an ice road, there are only certain times of the year you can bring in your materials. Planning and basic knowledge of these challenges, which often require one to two years planning in advance, is key.

## What are some of the key CSR initiatives that Xstrata Technology Canada is undertaking?

While most of Xstrata Technology Canada's key technologies are built abroad,

every time we have a project in the North, the equipment must be assembled on the ground, as close to site as possible. We often seek local skills to help fulfill these gaps, particularly in very remote locations.

## It can sometimes be challenging to break into new markets, or introduce new technologies to markets. Have you found this in Northern Canada?

When we first started in Canada, we were seeking the clients; this has now turned around and our clients are the ones finding us. As people engage our technologies, they begin to trust it more; this is one of the key reasons we have been able to expand so quickly.

## Do you believe Xstrata Technology Canada will establish an office in Canada's North in the near future or will we see any new technologies soon released?

We are currently optimizing our technologies that are applicable specifically to operations in Canada's North. You must understand that technology is similar but requires a different strategy to other global mining jurisdictions, for example, Australia, and we are continuously developing as we recognize this.

## What is your vision for Xstrata Technology in Canada?

Xstrata Technology Canada certainly plans to increase their presence and expand in northern Canada; we want to be the 'go-to' company, the standard in all technology areas in terms of grinding, flotation and smelting. We currently have fourteen mills in North America, and are supplying another six in 2012, which testifies to our plans for expansion. Xstrata Technology Canada is not just here to sell these technologies, but to provide solutions for our clients. •



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# Interview with Keith Byram

PRESIDENT, PELLY CONSTRUCTION LTD.

**Can you give a brief overview of Pelly Construction Limited in Yukon, and tell us about some of the companies key milestones?**

Established in 1987, Pelly Construction has historically had a dual focus of highway construction and working with mines. We have built several hundreds of kilometers of highway in Yukon, the Northwest Territories, Alaska, and British Columbia, but when the jobs are available our total focus is the mining industry. Pelly Construction, and my previous company, have worked on almost every piece of mining infrastructure in Yukon over the last fifty years, the exception being the Wolverine mine. Currently, our two main clients are: Walter Energy Incorporated at Chetwynd, and Capstone Mining Corporation in Yukon. We have been involved with the Minto mine from its inception with Minto Explorations Limited, building the access road in and carried out site work for the mill and the camp. After a brief shutdown Capstone Mining Corporation took over the project and we commenced mining, which we have carried out for the last eight years. We also actively support mine training and have led the way in the territory on safety procedures within the industry.

**What percentage of your operations are currently connected with the mining industry and how will we see this expand or change across the region?**

90% of our current operations are focused on the mining industry. Currently, we do not have any operations in Nunavut; its distance from Whitehorse would be a challenge and a major consideration when taking on a project. Albeit, due to our cold weather expertise, we did carry out an infrastructure project for the British government in the Antarctica in the past. We have also carried out highway construction in Alaska and would consider operations there in the future.

**What differentiates cold weather op-**

**erations from other southern based projects?**

Pelly Construction has the practical experience of working in extreme weather conditions: cold weather operations invariably mean isolation and the need to forward plan equipment and spare part requirements; we also have the knowledge and experience of what oils to use and how to deal with and handle permafrost.

**We have heard from our interviewees that the state of permafrost is changing in the North, can you comment on this and how this could potentially affect mining operations?**

Permafrost is not an issue when constructing around Whitehorse, but once into the mid-latitudes there is discontinuous permafrost. For example, at the Faro lead/zinc mine we carried out custom-mining and built the infrastructure; on the shady side of the valley the permafrost stayed intact, but on the sunny side of the valley the permafrost was intermittent. Moving far north to the Old Crow region where we have a joint venture company with the local community on a civil works project, there the permafrost is continuous. When moss and vegetation is stripped in the summer, permafrost will temporarily melt which can create problems and requires expertise and experience in this area to manage.

**Do you have an example of a project that illustrates the unique demands and challenges of working in Yukon?**

One of Pelly's most challenging projects was building some of the infrastructure for tailings for the Faro mine, which at the time was one of the biggest lead/zinc mines in the world. We built two large dams; special care had to be taken as there was intermittent permafrost. A stream had to be relocated from its original valley up onto the hillside in a permafrost area, and to avoid the permafrost thawing most of the excavation work was

carried out in freezing winter conditions. To insulate the permafrost it was back-filled with a 4 m thick gravel thermal barrier. This work was carried out 30 years ago, and is still in place. Sourcing labor is a problem throughout western Canada. Pelly, being a long established company with a history of employing local people, find it easier to source labor than other companies, but do bring in some outside personnel as demand outweighs supply.

**Can you outline Pelly's involvement with aboriginal partnerships; and the importance of this engagement?**

We have aboriginal partnerships with: Na-Cho Nyak Dun Development Corporation; Little Salmon/Carmacks First Nation and Selkirk Development Corporation; and Vuntut Gwichin Limited Partnership, a jointly-owned venture under the guise of Porcupine Enterprises where together on two occasions we have built a 260 km winter road into Old Crow. First Nation organizations are gaining momentum; it is essential to maintain engagement with them. They have a two-tier organization; political and commercial. Commercially, First Nations have been active in acquiring companies, and also forming joint venture partnerships on bigger projects. There have been successes, and failures; some companies have tried to take advantage of First Nations' inexperience, which has left a sour taste for some. Pelly will partner with First Nations where it will be beneficial and successful for both parties.

**What is your vision for Pelly Construction in Canada's north?**

Our highway work is now phasing out, and the mining industry will take center stage with Pelly Construction actively pursuing this business. The company is well-financed, has a wealth of experience and equipment, and is ideally placed to take advantage of the evolving mining industry in Yukon.

**Is there anything else you would like to add, and do you have a final message for our readers?**

I came to Yukon for two years, but am still here after 40 years. Arguably, there is no finer place in Canada to live and work. The opportunities in Yukon are unlimited. •

# Interview with Alan Lebedoff

CEO, ALX EXPLORATION SERVICES INC.

## Could you provide us with a brief history of ALX Exploration Services in Yukon?

Originally I had undertaken the business more as a hobby. We began by manufacturing core boxes; we heard that companies were having to go down to British Columbia to get them, and the demand was just too high to keep up in the Yukon. I thought I would build a couple in the evenings after school, though it didn't work out that way. Our first major order was from Capstone's Minto mine when they were still in their exploration phase. The first couple years saw myself and two to five employees working out of my parent's backyard. After purchasing a number of properties over the years, we expanded our services to include mining, exploration and drill supplies.

## How have you seen business grow and expand in this short period?

2012 has been a slower year, but every year we take on more, so where other companies have been slowing down, we are still quite busy as we are now offering more services and have grown approximately ten-fold since our establishment. We try to be a one-stop shop; if we do not do it, we try to do it, but we are mainly a supplier. We try to mix service, timeliness, price, and quality. The majority of our work has thus far been in the Yukon. We have entertained the idea of going into Alaska and Northern BC, which may happen in the future.

## Could you tell us about a project you have worked on and what some of the unique Northern challenges faced?

There have been many times where my clients may have to shut down for a short period if they do not have a certain part, which can be sometimes devastating in the short season with which they work. We are able to help them by either flying that product up, or have our staff work through the evening to resolve the issue.

## Have you engaged or partnered with any Aboriginal groups, or other local businesses as you have expanded?

We have partnered with First Nations in Northern BC in the past, and have an ongoing relationship with one group in the Yukon; a portion of our growth in the future will likely be due to partnering up with other local businesses.

## Have you found that the Yukon has a unique environment, which requires different technologies or adaptation of methods?

I think it is mostly just adaptation, and finding better ways of using what we have in a way more suitable to Yukon conditions. It is sometimes a struggle in the winter as a lot of the exploration will shut down, but on the mining side, we also have better road access to different sites than places such as the NWT.

## How do you manage the logistical hurdles of the North? What are some of the challenges you have faced which are unique to Yukon?

Logistically, if we need to get anything to a site quickly we will fly it in. This can increase costs, but it could save a great deal of time. As for challenges, labor is a major hurdle. We are constantly going through staff, by having to compete with the exploration and mine sites for wages. We have had to fly managers in from the south and they can still be difficult to retain.

## How do you overcome this challenge?

It has been a struggle; we have looked for staff from outside of the Yukon. It helps in the summer to use University students as laborers and help build their skill set. As for skilled laborers, this will likely continue to be a struggle, particularly with the current housing situation in the Yukon.

## Looking towards the future, what is your vision for ALX Exploration Services?

In the next five to ten years, we hope to have included a couple other businesses to our current operations, whether these be self-start or takeovers is yet to be seen. We are also looking to grow more into Northern BC and Alaska, as well as diversifying some of our services and offerings.

## Do you have a final message for the readers of Engineering & Mining Journal?

The Yukon is one of the number one spots in the world to explore and mine. Even though we are small, I believe the Yukon will be one of the hot spots for at least the next 20 years, and continue to prosper. •



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# Interview with Danny Cimon

PRESIDENT, DANMAX COMMUNICATION LTD.

**Can you give a brief overview of the history of Danmax Communication Limited in the Northwest Territories?**

My stepfather was working for Marconi Canada in the North carrying out telecommunication maintenance; he relocated from Vancouver to Yellowknife and took up the Marconi contract establishing Danmax as a family business in 1987. After 25 years the structure of the business has narrowed to sole ownership. We currently employ nine people with the prospect of increasing our workforce, 12 staff would be our optimum figure; staff retention can be a problem if they are not attracted to living in the North. Danmax is a diverse company covering not only telecommunications, but security and telephone systems; a steep learning curve for a new employee who has only experience of radio or phones. Danmax covers both the Northwest Territories and Nunavut from our office/service center in Yellowknife.

**Though you service a number of industries, what percentage of your client base would you say is mining-related?**

Danmax is a diverse company and is not reliant on the mining and oil sectors, and has been able to navigate the peaks and troughs of these industries. We are a service company; when times are good customers will buy new equipment, and when

times are not so favorable we maintain what the client already has in situ. Our mining-related client base can vary from 50% to 80% depending on the active mines in the area; our clients include Diavik Diamond Mine, DeBeers Snap Lake Mine and Newmont Mining.

**External of mining, what other sectors do you as a company service?**

Danmax' offering is diverse and includes, amongst others security systems and phone systems. Seasonality affects the focus of our client type. We are interested in pursuing the oil and gas industry; historically it has been dormant in this sector but this may change with the activity of the McKenzie Valley pipeline.

**Can you give details of your other key clients and a showcase project in the area?**

Danmax installed the initial communication system for the first diamond mine in the Northwest Territories, BHP's EKATI site, and a voice-operating Motorola trunking system for De Beers' Snap Lake project. Each time we service a new mine advancing technology has progressed to a new level; at Diavik Diamond Mine we installed a full digital system with texting and GPS vehicle tracking capabilities.

**Do you deal with the contractors associated with your key clients or is it a direct relationship with your clientele?**

Some of the mines are owned or built by a third party company; in the case of De Beers we dealt with AMEC. Securing business through a third party can be challenging as they have a specific budget to work to, and we are not always able to fully brief the EPCM's of our expertise upon the request for proposal. The activities leading to the sales process are invariably carried out some distance from Yellowknife.

**What have you found to be the key challenges and opportunities working in the Northwest Territories?**

We have found that we have to bring to bear our own solutions to our customers' needs; our diverse capabilities come to the fore. One of our strengths has been to tie in our above and below ground systems creating a totally integrated communication system. Prior to our involvement in underground mining, the systems were a completely different model, brand and type of equipment and were unable to communicate to the surface, which created logistical and safety issues; Danmax recommended a seamless communication system between the two locations. Open pit mining presents communication challenges; the deeper the mine the more of a shield is created to communication at surface, and Danmax has created a solution providing booster systems to allow operations in previous non-communication areas.

**Does the severe climate of the North affect your communication systems?**

Danmax carries premier product lines, which are renowned for operating in extreme conditions. Most of the communications equipment is housed in a shack easing the severity of the conditions. The problem arises when systems are mothballed and become frozen; re-starting can be an issue with melting ice. Danmax's recommendations to the client would be to remove the equipment for the period of inactivity. •

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# Interview with Shaun Rudolph

PRESIDENT, COBALT CONSTRUCTION INC.

## Can you tell us a bit about the history of Cobalt Construction in Yukon?

Cobalt Construction, the successor to my father's Golden Hill Ventures, is in its third year of operation. I began working for Golden Hill from age 11, washing parts in the shop, and went through roles as a laborer, equipment operator, shift foreman and supervisor before being able to look after my own projects. My dad is still involved in Cobalt Construction as a management consultant, providing his great market knowledge to help us move forward. We are predominantly doing road works at the moment, but are involved in all types of earth-work project. In the Yukon we were the subcontractor for the Mayo B power dam in 2010, and last year we performed about \$17 million in highway works around the territory.

## Currently, how much of your Yukon operation is related to mining?

Not too much of our current work is directly related to the mining industry, but the majority of the road works coming out are on the Campbell Highway, north of Watson Lake, which is servicing the Yukon Zinc and Cantung mines. The government attempts to put resources into areas where mines' trucks will bring a lot of traffic, so this work is related to the industry in an offshoot way. Much of our equipment suits the needs of these mines' development, and the company has experience in building tailings dams, heap leach ponds and airstrips, and fulfilling tailings and ore hauling contracts: these are areas we hope to get into as more mines arise. I would like to see an additional three or four producing mines in Yukon that we could try to obtain contracts with. Cobalt Construction likes to introduce itself to mining companies at a very early stage, giving us a foot in the door years later when they need work done. Golden Hill Ventures was involved in just about every mine the Yukon has had. We did dam raisers at Cantung, tailings ponds at Sadanah Hess (?) mine and quite a large ore hauling contract for Faro, where there could also be future opportunities in reclamation work.

## Do you have any niche services that differentiate you from the competition?

Cobalt Construction has experience working in the north; we are used to the cold climate and dealing with permafrost. Our operation has a lot of local content – this year our staff consist of approximately 75% First Nations – and many of our suppliers are also based in Yukon. This makes governments more favorable to mining projects that subcontract us.

## Are all of your projects located in Yukon?

Cantung is just on the other side of the border with the Northwest Territories. Alaska is difficult – moving equipment is easy enough, but you tend to have to hire everyone except the management team locally, which can create difficulties. We have ven-

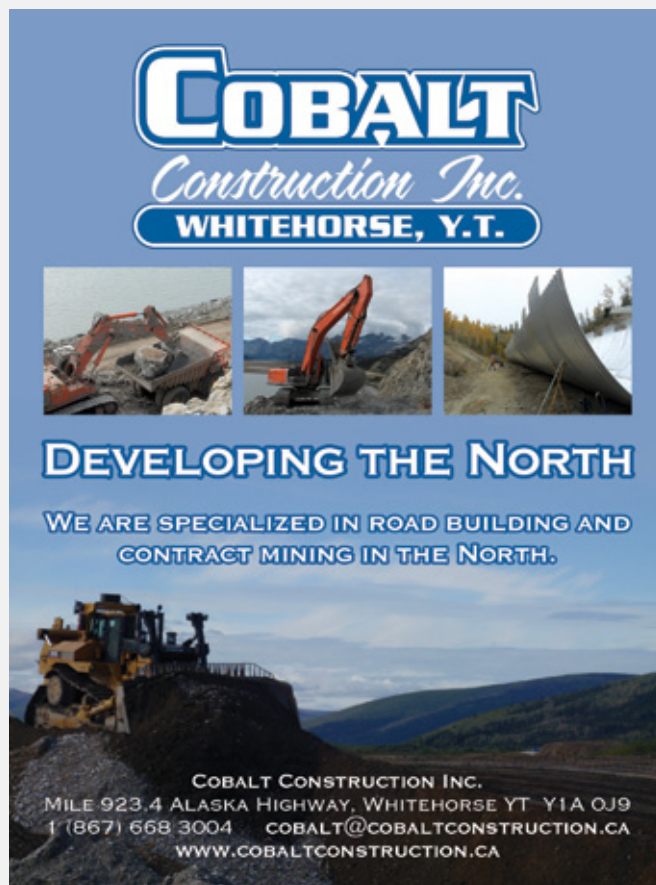
tured down to southern British Columbia, however, building the airstrip for Kemess mine. I would like to keep Cobalt Construction's focus on Yukon – obviously you have to go where the work is, but with the anticipated mining boom this is a good time to be up here. I have no current plans to expand into other territories.

## How will the shifting state of permafrost affect work in Yukon?

The type of permafrost up here is very susceptible to temperature change because it is hovering just below freezing. In fact, approximately half of our revenue each year has been from re-servicing highways affected by the permafrost, replacing covers and multi-plates that have collapsed or even ripped apart. For the mining companies, the permafrost shift is certainly a challenge, as addressing it requires experience in which type of materials to lay down.

## What are the key challenges and opportunities presented by working in Yukon?

Working in remote locations and places that can see 80 degree temperature shifts between summer and winter are the biggest challenges of working in Yukon. You need operators and supervisors who understand what the weather does to equipment, and how to keep it functioning. Cobalt Construction is managing, but we certainly notice the labor shortages in the current climate; the average age of skilled workers is increasing, with many of our top operators the legacy of the vocational school that existed in Yukon in the 1970s. The skills shortage, though, is a global problem, rather than a regional one – it is hard to remain competitive with the wages being paid by sectors such as oil and gas. •



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# Northern Expertise Abroad

## Providing services in extreme conditions

Pelly Construction Ltd. specializes in constructing roads, mining infrastructure and contract mining in remote and often very isolated areas. Two important items to be considered in these endeavors are LOGISTICS and PERSONNEL.

Logistics are very important as the projects are usually located in areas where parts and supplies are not readily available. A large inventory of spares must be kept on site in order to maintain steady production. Some projects are not accessible during certain times of the season except by air.

The selection of personnel is equally important. Workers usually live onsite in camp. A typical shift is two weeks at site and one week off. Work is normally based on two ten-hour shifts, seven days per week. The workers have to accept being away from home for the majority of time and it is important to select people that can handle that type of lifestyle.

An extreme example of the isolated nature of projects that Pelly has successfully undertaken is a job that was performed for The British Antarctic Survey, a division of the British Government. Their main research station is at Rothera on Adelaide Island, 1,000 NM south of Cape Horn. Scientists are transported to Rothera during the Austral summer and are flown to interior locations by Twin Otter aircraft that formerly operated off the permanent ice cap above the sea level camp facility. This operation was fraught with problems and Pelly undertook a contract to build a rock fill runway at an elevation just above sea level.

The project was a totally self-contained, with Pelly supplying everything required for a two-season project. The first logistical problem was the movement of equipment, supplies and personnel from the home base in Yukon Canada to the other end of the earth. A worldwide search found a 30,000 mt Swedish ship that met the ice reinforcement criteria and it also

had unusually large fuel tanks and personnel accommodation. It had its own cranes for unloading that could be twinned to lift 50 mt. The ship was chartered and brought from Europe through the Panama Canal to Vancouver Canada for loading. The equipment included excavators, loaders, bulldozers, rock drills, graders, compaction equipment, rock crusher and a 70-bedroom camp. Some of the ships spare bunker fuel capacity was cleaned out and 1,250,000 l of diesel fuel for the project was taken on. The cargo included 110 containers of explosives, spare parts, lubricants, prefabricated parts for a hanger and food for two seasons. There was no facility to dock a ship at Rothera so a tug was purchased that was placed in a cradle on the deck of the ship. Enough pin connected portable barges sections were obtained to construct two 40 ft. x 90 ft. barges. These sections were also lashed down on the deck. Since the food had to cross the equator, Reefer sea cans were used to keep the supplies either frozen or cooled and these units were plugged into the ships power supply. The trip from Vancouver to Rothera took 30 days with one brief fuel stop in Val Paraiso, Chile. Pelly had personnel on board the ship to insure the operation of the reefer units as well as monitor the securement of the other cargo.

When the ship arrived at the site the tug and barges were launched and after nine days of continuous unloading everything was ashore. The fuel was pumped from the ship into barge sections and from there to 90,000 l fuel bladders.

Pelly could have obtained workers from anywhere in the world for the project but chose to use people that were well known and could be counted on to handle the long hours and isolation. Thorough physical and psychological examinations were performed on each potential employee. Once on site the work carried on around the clock with everyone working at least

eleven hours per day. In most cases people were on site continuously for at least three months. Most of the workers were flown from Canada to Punta Arenas Chile. They were then flown across the Drake Channel to the Chilean airstrip on King George Island and from there to Rothera on ski equipped Twin Otters.

The original contact was for the runway, hangar, fuel storage and seawater intake construction. The ship arrived and work started in January the first season. All personnel were flown back to South America by March 31. Staying beyond this date would risk spending the winter "on the ice".

A joint design team consisting of the owner, the design consultant and Pelly, during the off season, designed a wharf facility that could be constructed with the equipment on site. Materials were obtained in Europe and were brought by ship to the site early in the second season. The original completion date of March 31 1991 was met. The project was on budget.

The facilities have increased the operating efficiency dramatically and are used by many countries performing research in Antarctica. •

**Pelly Construction Ltd.** is a privately owned company based in Whitehorse, Yukon, Canada. Pelly specializes in heavy construction and contract mining in remote and difficult areas. The company owns a large fleet of mining and construction equipment and has an outstanding staff of experienced personnel, including mining and civil engineers. Pelly has had a long history of successful working relations with First Nations Groups. Many agreements are in place to attest to the benefit of such relationships.

**Keith Byram** graduated from the University of Manitoba with a degree in Civil Engineering. He is the President and a principal owner of Pelly Construction Ltd. He has successfully completed over 200 civil and mining projects. Many of the projects with which he has had direct involvement were located in northern isolated environments. The range of projects include highway and infrastructure construction, as well as heap leach and open pit mining contracts.

# Interview with Jeremy Haile, Ken Embree, Steve Aiken, Richard Cook & Kim Cameron

PRESIDENT\*; MANAGING PRINCIPAL (VANCOUVER); PROFESSIONAL ENGINEER, AND MANAGER ENVIRONMENTAL SERVICES, NORTH BAY; SENIOR ENVIRONMENTAL SCIENTIST, NORTH BAY & SENIOR MARKETING ASSISTANT, KNIGHT PIÉSOLD LTD.

\* Jeremy Haile was president at the time of the interview, although has now taken the position of principal consultant

## Can you outline the importance that northern Canada has for Knight Piésold?

**JH:** Over the last five years northern Canada has been of great significance to Knight Piésold; in 2008 our largest client was Baffinland Iron Mines Corporation in Nunavut. Looking forward, we are focused on where our clients go; currently, we have an increasing number of clients working in Canada's north, including Sabina Gold and Silver Corporation.

## What are some of the niche engineering and environmental services you offer to the mining industry in Canada's north?

**JH:** From an engineering viewpoint, our specialist strengths include: water management, baseline hydrology; and geotechnical engineering i.e. pit-slope designs, tailings dams, waste dumps, water diversion dams, and plant site foundations.

**SA:** On the environmental side we offer social and environmental services: consultation with Aboriginal communities and interaction with them for traditional knowledge and data collection; terrestrial and environmental aspect of a project, understanding the flora and fauna; general mine reclamation work, mine waste management, and understanding the geotechnical and geochemical properties of the waste materials and how they should be disposed of.

## Has the change in the structure of permafrost in the north caused any issues, and are there other concerns that the mining industry should be aware of?

**KE:** Our designs have to accommodate the change in structure of permafrost in the North. For example, pit slope designs in mines are affected by the depth of permafrost and consideration has to be given to surface cover to maintain permafrost.

**JH:** We have built up a specialist and com-

prehensive knowledge of hydrology, i.e. baseline stream-flow measurements. This is a real challenge in the north as the major run-off is in the summer when the snow melts and temperatures are above freezing, but it is necessary to maintain stream gauges and sampling throughout the year. The hydrology data collection for clients is performed under extreme conditions and is stored in a data management system developed by us.

## Can you elaborate on your Fulcrum data management system, and is it unique to Knight Piésold?

**JH:** Fulcrum is a data management and

analysis system, which was designed and developed by Knight Piésold around our client data base. Hydrology data is updated regularly from over 800 stream gauges, some of which are equipped with satellite telemetry. There are different modules in Fulcrum for climatology (temperature, snowfall, precipitation, wind speed); geochemistry; geotechnical; hydrology; and water quality data. Once the data has received quality assurance checks, it is stored and locked down and cannot be changed. Similar systems are being developed by others, but many of our mining clients have shown a preference for our Fulcrum system for data storage. •

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***Knight Piésold***  
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# Interview with Grant Pearson

VICE PRESIDENT BUSINESS DEVELOPMENT, NUNA LOGISTICS LTD, NUNA GROUP OF COMPANIES

## Can you give a brief overview of Nuna Logistics and the Nuna Group of Companies?

Nuna, a service company for the mining industry, was established in 1993, and is a 51% Inuit-owned company: Kitikmeot Corporation 25.5% and Nunasi Corporation 25.5%. Our focus has primarily been the Northwest Territories and Nunavut, and the company developed with the diamond mining industry in northern Canada. Nuna has been involved with almost every northern mining project since the diamond industry developed in Canada. Our service offering includes: early exploration support; assisting our clients with pre-feasibility/feasibility studies; all the infrastructure development with respect to earthworks, such as airstrips, all weather and ice roads, and open-pit mining; we have a number of subsidiary companies and Joint Venture partnerships. Our training division is called Nuna Training Technologies Limited; and we also have Nuna Innovations Incorporated covering new innovative products for the mining industry. In addition to our expansion activities in Canada, we have expanded into Mongolia by setting up a majority Mongolian-owned company; our past Nunavut experience is good preparation for the challenges faced in Mongolia.

## Can elaborate on the key projects Nuna has carried out in Canada's north?

The diamond industry has accounted for the majority of Nuna's initial growth. We have been involved with key projects, such as: BHP Billiton's EKATI diamond mine, carrying out airstrip construction and early exploration support. We had the initial life-of-mine contract for the Misery Pit operation, carried out training and pre-stripping for the early open pits, and construction activities over the years for frozen core dams, and water retention structures. Further projects have been: Diavik Diamond Mine, a partnership with Peter Kiewit Sons Company Limited, called Lac de Gras Constructors, where we were involved in building the two large dikes at the Diavik mine-site plus early stripping;

De Beers at the Snap Lake diamond project carrying out a lot of their early infrastructure development; Agnico-Eagle, we constructed the 108 km all-weather road from Baker Lake to the mine site, the longest road currently in Nunavut; and Baffinland Iron Mines in the Qikiqtaaluk region where we carried out bulk sampling for their Mary River iron ore project. Part of our business model as an Inuit-owned company is to incorporate the local communities and Aboriginal businesses wherever possible, and look at opportunities in addition to northern Canada and we now have offices in Rankin Inlet, Thunder Bay, Prince Albert, Edmonton, Vancouver and Ulaanbaatar.

## What is the main focus within Nuna Logistics' mining service offering, and can you cite one case study that illustrates Nuna's specialty service offering to the mining industry?

Currently, we are carrying out the care and maintenance for the Giant Mine for Public Works Canada, which is a specialty service. Training has also been a key activity for Nuna in the north to develop the skill sets required to employ as many of the people from the northern community as it can. A good case study example is our involvement with the Mary River iron ore project in Baffinland where the client required our expertise and many elements of our specialty skills in remote northern construction to complete the bulk sampling program.

## Is Nuna Logistics looking to increase its partnerships with Aboriginal corporations?

Nuna Logistics is looking to continue its policy of increasing partnerships with Aboriginal corporations. There are partnership opportunities in Ontario. We are also looking at providing opportunities for other Inuit businesses to bid on larger projects, for example, we have established Kivalliq Services Limited, a consortium of three successful Inuit businesses in the Kivalliq region of Nunavut, who is currently carry-

ing out road construction on the Meliadine project for Agnico-Eagle. Over the last couple of years Nuna Logistics has looked to expand and has developed relationships in Yukon, and also British Columbia; historically, the growth and focus of the company has been in the Northwest Territories and Nunavut.

During our community visits when we start a project, our goal is to give a training overview to the local communities of the culture and equipment of mining. Nuna is currently developing a program to present to Grade Ten students to outline the opportunities that exist in the mining industry within Nuna Logistics and to encourage them to stay in school. Our objective is to engage at different levels. We were one of the first groups in Canada to introduce a mobile training simulator and customized it for easy transportation to mine sites; the simulator recreates different road and climatic conditions or mechanical defects a haul truck, dozer and other types of equipment could experience.

## What future role do you visualize Nuna Logistics and the Nuna Group of Companies playing; and are there any other sectors you would like to engage with?

We see ourselves assisting the forward movement of our clients' projects by construction on the ground and encouraging both local and foreign investment into Canada's northern mining sector via, for example, Chinese investment who we have already engaged with by presentations in Beijing outlining the benefits of mining in Canada's north. Currently, with the potential volume in the north we are focusing on our niche and skill set within the mining industry.

Nuna understand it has to be competitive; it is well located for northern projects, and focuses on opportunities for its owners and Aboriginal partners. We are optimistic that our clients will appreciate our quality of work and stance of employing local communities as compared to southern companies who lack the Aboriginal/Inuit association. •



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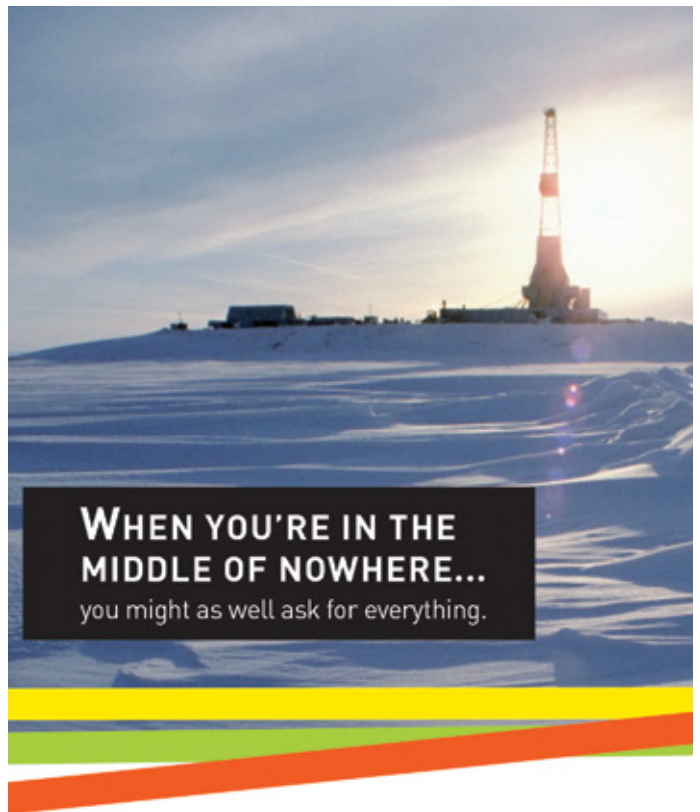
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# Interview with Ivor MacGregor

VICE PRESIDENT, REMOTE SITES - WESTERN CANADA, SODEXO CANADA

## Could you briefly introduce our readers to Sodexo on a global scale?

Sodexo is present in eighty-two countries with 418,000 employees globally and we are in nearly every business segment, though North America consists of 42% of the company's global sales. With a global revenue of approximately €19 billion, we have 20,000 employees in remote sites in North America; Canada, at peak, makes up to 11% of the entire global sales. Other markets, such as the US, Australia and Asia are all on the forefront of Sodexo's international plans going forward. Canada is one of the top three emerging marketplaces for Sodexo, of which we have seen Northwestern Canada grow steadily; in this division, mining is the main focus.

## Could you tell us a bit about Sodexo's background in Canada's north, how it has evolved and expanded to as it stands now?

Sodexo was founded in France in 1966, Sodexo's Canadian business is made up of about 14 different acquisitions; that evolved to become the Sodexo Canada division. I was hired in 2000 to grow the business in Western Canada. We were well known in the Quebec and Atlantic Canada marketplaces and still now in certain areas we are a best-kept secret though we are currently rebranding the entire organization on a global basis.

## Could you elaborate on the company's unique or niche services in remote locations?

Sodexo can establish and provide the entire facility to a particular site including grounds keeping, maintenance, design, build, transport, mobilization, set-up and manage all aspects of those services. We can also manage the catering, accommodation, and housekeeping needs for different camps and sites.

We try to integrate with our clients to protect their quality of life through interaction and intervention. In some places we have an organization within the organization called Circles, which is a concierge service

at minimal charge within the camps. We make our catering and accommodation services as comfortable as we can. Depending on the season and location, food is very important; for example in Yukon, people want comfort food whereas sites for oil and gas tend to want other variety of dishes.

## Tell us about some of your key clients in Canada's North?

Across Yukon, Northwest Territories and Nunavut, Sodexo have just started to merge into the marketplace approximately three years ago. At the North American Tungsten mine site, which is just across the border from the Yukon, we have been operating the Cantung Mine site since 2002. In Yukon we have been at the Capstone Mining Minto mine site for three years. We were also involved with Bear Gold in Northwestern BC of whom we were dealing with in different levels of exploration and mining.

## Can you tell us about Sodexo's involvement with the local aboriginal business corporations?

Sodexo have been heavily involved in the aboriginal aspect for many years with 35 active partnerships and we may very well be a pioneer in this marketplace in this regard. Some of our competitors have partnerships but no projects whereas we have criteria in place to ensure our partnerships are viable and contain active projects.

## How do you ensure these successful partnerships when moving into new areas?

Sodexo engages in local events such as town hall meetings when we move into an area to find potential partner groups and maintain our 98% aboriginal population in our mine sites, including at managerial levels. We also have a 'buddy system' to make our workers feel more comfortable and retain them within our workforce.

## Could you tell us more specifically about some of the key challenges of operating in the North?

One of the key concerns about Northern operations is budget; it costs more to move

people to projects in Canada's north due to the lack of infrastructure in many remote regions. We also experience fairly high turnover rates in this division; Yukon has proved especially challenging in this regard.

## Have you taken any particular steps to help retain your workforce?

Sodexo has the Rising Star program to build our company strength. On appropriate sites, ones which we know will be good training grounds, we will take three or four rising stars – either internally or externally – and place them in management training with an experienced management team. Looking particularly at the north, we know that currently, and in the future, the aboriginal workforce is the answer to our employee shortages.

## The mining industry in Northern Canada is a crowded market place: how have you seen competition for your services evolve and what sets Sodexo apart from the competition?

Sodexo has a patented program called Clients For Life and within that we have stern break terms with criteria that has to meet a financial hurdle for example. Sodexo has annual expectation meetings, which clearly outline the measures and terms we would like to reach that year. Sodexo wants to take on business that is sustainable, that will help us with capacity building with our aboriginal partners. If the financial terms are correct, we also look at establishing partnerships with other companies we may want to do business with.

## How do you envision the mining sector in Northern Canada evolving in the near term and what role do you see for Sodexo in this?

Sodexo is hoping to evolve into Northwestern Canada; we have been present there sporadically over the years as part of a very small exploration but plan to focus our efforts there in the future. Due to current clients and aboriginal partnerships in Nunavut, we plan on taking our historically smaller projects to much larger scale in the near future.

## Do you have a final message you would like to share with our readers?

By the year 2015 the aboriginal workforce will be 50% to 60% at all entry-level positions in Canada's North and it is important that everyone operating in Canada's North be aware of this. •

# Interview with Jake Lang

MANAGER OF METALLURGY, METALLURGICAL OPERATIONS, SGS CANADA INC.

## Can you give a brief overview of the history of SGS in northern Canada?

Historically, SGS facilities have been located near ports to allow us to provide services to our clients where they need them. Over the years, the minerals side of SGS has evolved and developed using this concept and can be found at all major ports in Canada.

At SGS, we are a company that is not only invested in organic growth but that is committed to acquisitions to expand the comprehensive range of services we offer our clients. When SGS entered the minerals market through acquisitions, it was a natural progression for us to become involved with grassroots exploration right through to the development and production of a resource.

## What percentage of your clientele does the mining sector contribute to SGS's operations in Canada?

We have 10 business lines in Canada services a range of industries. In this region, the hard rock and energy minerals mining industries are the majority of our Canadian clientele. From our location in Vancouver, we serve clients from around the world.

SGS has a strong presence in British Columbia, Yukon, and the northern USA. We have strategically placed our laboratory in Vancouver as it is a key city in the mineral exploration market due to the numerous junior and major mining companies in this region. Recently, we expanded and integrated our service offering by moving into a 68,000 square foot multi-lab facility in Vancouver.

The Vancouver facility has been strategically designed to offer a full suite of integrated geochemistry, metallurgy, mineralogy and trade services, as well as environmental testing services for the exploration and mining industry, all under one roof. This unique integration of services allows SGS to provide clients with a strong team of experts that work together on their project to quickly and seamlessly transition it from one stage to the next. Also, this new state-of-the-art facility provides an increased capacity and capability so we can continue to meet the demands of the growing minerals exploration industry on the west coast.

## Can you outline some of the current key technologies that you engage within the mining industry; and are you developing any new technologies for this sector?

SGS is committed to offering the mining industry a complete spectrum of services including:

- Exploration geology
- Geochemistry
- Metallurgy
- Mineralogy
- Environmental characterization
- In-plant services such as process optimization
- Minerals trade services inspection and sampling
- Commercial analysis

We are adopting ground-breaking advancements in rare earths technology and process development. We are also involved in advanced technologies such as autoclave leaching, a high-pressure oxidation process. In our Lakefield multi-lab facility, we have one of the very few pilot plants offering continuous autoclave testing. SGS' teams of experts are developing specialized gold processing for refractory gold and double refractory detoxification work for cyanide downstream processing.

## Can you give details of some of the key projects and clients you have in the north?

We have many clients in the prefeasibility and feasibility stages in the north. Due to confidentiality agreements we are unable to release the particular names of majority of these projects and clients. We have, however, been publically recognized in press releases by Canadian Zinc Corporation, Northern Freegold Resources, Goldcorp Incorporated and Barrick Gold for the services we have provided them.

## Can you tell us about a specific project that illustrates the unique challenges of working in the north?

There are many challenges to overcome when working in the north including transportation and power limitation. Currently, there are 12 mining operations in British

Columbia looking to commence the construction phase but have been unable to do so due to inadequate power supply to accommodate them. In Nunavut, the Northwest Territories and the Yukon, the same power inadequacy exists. This is a massive financial burden on the junior exploration companies who have already invested large amounts of capital in their respective projects. SGS offers on-site mobile laboratories for exploration stages as a means of reducing clients' costs.

The grinding process is highly inefficient in terms of energy consumption with approximately only 1% of energy being used for grain size reduction. The remainder is dissipated in the form of heat and mechanical energy. Over many years, SGS has built up a unique database of comminution results for over 25,000 samples. This database enables us to accurately size the grinding mills and predict the energy usage associated with each ore block. This information can then be aggregated into an overall energy profile for the mine. These grinding technologies, such as CEET, also allow us to select the optimal equipment and avoid over-engineering and thus eliminating excessive power draw. It gives our clients the ability to predict power requirements year-on-year and manage power use and related costs. SGS also uses our technical expertise to troubleshoot or audit grinding circuits. This can lead to marked improvements in the financial performance of a mine, especially those in areas where there are power challenges.

## Is the North an area that SGS will be focusing on in the future?

SGS' commitment to the north is evident by the substantial exploration-related investments we have made in the region. These include acquisitions in British Columbia in recent years for geochemistry and exploration work.

SGS is focused on meeting the demands of vibrant industrial growth that arises in Vancouver. We recently announced the expansion and integration of our new state-of-the-art multi-lab facility in Vancouver. The facility has been strategically designed and relocated to offer a full suite of integrated geochemistry, metallurgy, mineralogy and trade services, as well as environmental testing services for the exploration and mining industry. This move ensures access to SGS' wealth of expertise and services across many disciplines, all at one location. •

# Caribou Crossing

## Environmental considerations in the North

There are a number of unique environmental, geological and social considerations in the territories, which for many juniors used to operating in other regions offer a steep learning curve.

"The collection of traditional Inuit knowledge became very important in terms of understanding the historical trends of numbers and distribution of important wildlife species, such as caribou, as well as marine mammals from the marine and shipping aspect of the project. From this historic data, we supported [Baffinland Iron Mines] to formulate a comprehensive traditional knowledge study [in the Mary River area]. This took three intense

years of study on Baffin Island and arguably is the most comprehensive and far-reaching geographically in Canada," said Richard Cook, senior environmental scientist, Knight Piésold, giving some idea of the care and effort that must be taken.

This local engagement and the potential subsequent social contract have also gained a newfound importance in the North. "Offering First Nation and community consultation is a strong asset of ours, and is one of the services that differentiate us from other environmental consultancies. We understand that the success of the project, whether it is for a mine, energy, port or other infrastructure project, depends on this foundation of community engagement," said Scott Weston, sector leader, mining, Hemmera Inc., an environmental consultancy.

Environmental considerations and protection can prove challenging, but manageable, in the North as well. "The Snap Lake piling project in 2010 was very difficult. We started a curtain grout project that was five meters from Snap Lake, so if anything leaked into the water they were going to shut the whole project

down; this was all on our shoulders. We were drilling primaries, secondaries, tertiaries and were grouting with all of our equipment covered in tents to avoid oil leaks... Our closest holes were actually five meters from the water, but we were successful in maintaining a green operation and completed project on schedule," said Devon R. McCaw, owner of Northwest Territories-based McCaw North Drilling and Blasting Ltd.

With arguably some of Canada's purest water, maintaining its quality is a key concern for mining operations and local communities. "We have built up a specialist and comprehensive knowledge of hydrology, such as baseline stream-flow measurements. This is a real challenge in the north as the major run-off is in the summer when the snow melts and temperatures are above freezing, but it is necessary to maintain stream gauges and sampling throughout the year," said Jeremy Haile, president of Knight Piésold.

The lack of northern labs is something that has proved challenging across the region. "Rescan has found it a challenge to handle and expedite samples to laboratories in Vancouver. Two laboratories opened in Yellowknife, but were not supported by the mining industry due to contractual arrangements with laboratories in Vancouver and Canada's North still lacks sufficient laboratories," said Clem Pelletier, CEO, Rescan Environmental Services.

Predominant labs around the country are aware of this issue and are tackling it head on. "SGS is looking at on-site mobile laboratories from an exploration viewpoint as a means of limiting or reducing the clients' costs," said Jake Lang, manager of metallurgy, metallurgical operations, SGS Canada Inc.

Others are introducing or expanding into new technologies. "Innov-X answers challenges of the remote locations, addressed via our technology and services. For example, instead of shipping samples to a lab elsewhere to wait for answers you can test right there," said Cindy Collins, general manager, Innov-X Canada Inc., which provides portable XRF and XRD technologies to a number of industries, mining chief among them. •

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# Interview with Ed Hoeve

PROJECT DIRECTOR, ENGINEERING PRACTICE, NT / NU ARCTIC REGION, EBA ENGINEERING

## Can you introduce us to EBA Engineering in Canada's north?

This office is part of the EBA and the Arctic Group and has approximately 20 employees; roughly two thirds are engineering focused, a third on environmental. Within engineering in this office our work is split into infrastructure, mining and transportation.

The ice road work we do comes under transportation but we handle that at our Edmonton office. The Arctic group has a presence in Edmonton and is based there and we have the regional offices too in Whitehorse and Yellowknife. Within EBA, our mining initiative is represented by a mining group based in our Vancouver office. We work together and there is overlap in those fields whereby we work collaboratively on projects.

## Could you tell us about the key clients and projects that you are involved in here?

We are a relatively small office and so we do not have the resources to handle massive technical projects; our Edmonton office often handles the bigger capital projects and we tend to get involved more with the operations of the mines. We also do construction services; monitoring, testing and checking construction. We do this in support of mining services, often through a contractor hired by the mining company. Clients have included EP Engineering Construct in Snaplake and BHP in Ekati. These projects typically lasted a couple of years. For the last three years we have been providing construction services to Snaplake for their tailings containment facilities. This is our biggest project directly related to mining. We do a lot of transportation work that is driven by mining, but for the government. Since 2008 we have been involved in the Deh Cho Bridge project, supporting the infrastructure. One of the considerations for this was security of the winter road system, security of supply of fuel and winter needs; this will be completed in 2012.

## Could you tell us a bit about the unique ice roads which support the mining sector?

Our firm became involved in 2001 and that was when there was a recognition that low volumes were increasing and the seasons were shortening due to climate change and so there might be a point when they would not be able to get all their supplies in a single winter season. Winter roads had to be optimised, which is when we became involved with our initiative. This took on various aspects including forecasting loads per season and both operational and engineering actions were made to aid with this. We started really getting in to ice mechanics at this time and paid more attention to the linkage between the load and the capacity of ice and how it behaves. The Tibbitt to Contwoyto winter road is 460km long.

## Could you elaborate on EBA Consulting's analysis of environmental changes in the North and the adaptation solutions you provide?

In terms of the ice road, we have been analyzing the climate and projecting what we can expect. Climate change is real and the winters are warming. However, even with the projections for the foreseeable future, the warming in the winter is not enough to make those winter roads not viable. With optimization we can forecast that we will continue to get the loads through that we need to. So for the foreseeable future, climate is a constraint but will not prevent the use of the winter roads. As for adaptation solutions, EBA Consulting was involved with the secondary route through the critical winter road so there is another option if one part failed. We provide quality assurance on the ice. We have seen climate change impact the greatest upon transportation and infrastructure first. Another job the EBA is soon to implement is the seasonal overland route; this is one adaptation solution by putting the first

150km of the ice road on land, which is quite critical. So both in the degradation of the highway and Northern airstrips we see vulnerability to settlements distress due to climate change. The Northwest Territories however are far more vulnerable to climate change, due to a warm climate and the large amount of permafrost. Permafrost is frozen ground that contains ice, which can melt and this can be seen in sinking roads for example.

## Do you think the mining sector in the Northwest Territories is aware of the challenges of these areas and the need to mitigate them?

In the climate change world mitigation is dealing with reducing emissions; the bigger solution for the mining industry is adaptation. It is inevitable that climate change is ongoing so it has to be anticipated and preparation must be done to deal with it. The regulatory hurdles in these territories are bigger for the industry right now. Engineering issues around climate change are important but can be addressed. This is not hard to deal with at the time of initial construction of buildings, what is more difficult is when there has been a lack of anticipation or trying to fix an issue that has been there since the time when people did not factor in climate change. With new mines, climate change is not the biggest issue governing viability of the mine but just something to be aware of.

## What is your vision for EBA in the Northwest Territories in the future?

EBA wishes to solidify our role and reputation as an authority-trusted provider of engineering and environmental services in the Northwest Territories. We view this area as having tremendous potential and opportunity for growth and we anticipate that we will be here participating in that. On a more local level, it has always been our goal to try and enhance the capability of this office so we can start to take on more of these projects. •



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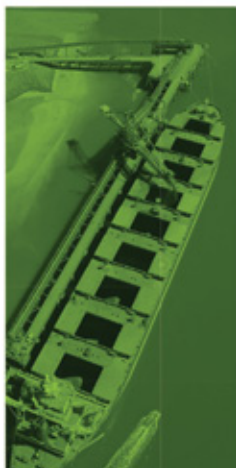
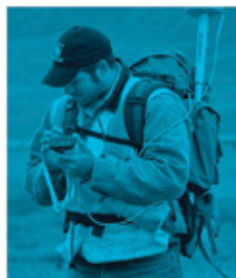
Photo: Thor Lake, NWT



Photo: Kugaaruk, Nunavut



Photo: Ice Road, NWT



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# Interview with Lou Bruno

VICE PRESIDENT, MINING, NORTH AMERICA, AECOM



## Can you give a brief overview of AECOM's global operation and a more in-depth view of the mining division?

AECOM is the world's leading infrastructure company covering rail, roads, airports, ports, water distribution, water treatment, power distribution and transmission. Its headquarters are in New York and Los Angeles, and globally it employs 45,000 personnel, 17,000 of which are based in North America. South America is a growing market for AECOM. Six years ago the company decided to diversify; mining, and oil and gas are the two growth areas. Our diversification started in Australia with mining where we have built up a considerable business, and have now extended this mining service offering in North America.

## Can you give details of the milestones you have achieved in Australia and what your strategy will be in mining for North America?

We are leveraging our infrastructure ability to accommodate the needs of exploration companies who are carrying out mining projects in increasingly remote areas that have no infrastructure. In Australia we have successfully carried out many mining infrastructure projects for big companies, for example, Rio Tinto, and BHP Billiton, Xstrata, and are currently engaged on the rail infrastructure for Rio Tinto's Simandou project. Our strategy will be to keep pursuing the growth area of mining, establishing our infrastructure and environmental service offerings and continuing to move forward with our EPCM capabilities sub-partnering where there is a gap in our expertise.

AECOM provides the client a full service offering covering the whole life cycle of a project from permitting and social issues through the early studies, and on to the execution stage; a service offering especially appreciated by the junior companies. AECOM's environmental service offering gives it the opportunity to enter at the early phase of a project.

## How easy has it been to build a mining practice in North America considering the lack of skilled engineering labor and competition in the mining industry?

Entering any new market is a challenge but equally an opportunity. Albeit the market is currently navigating a double-dip recession, but with China's continuing urbanization and developing economy, the future looks brighter; AECOM believe that the mining sector is a growth area where it has established itself in a small time-frame of six years with major projects in Australia and Canada.

In the Americas, our current focus is Canada's a mining market; however we do communicate with Australia and assist each other with resources. Our mining strategy will be to grow our centers of excellence and expand globally. For example, in transportation and infrastructure in which we are the leaders, we are executing the Simandou project with both Australian and North American personnel.

## Are you finding mining companies are funding project infrastructure or turning to federal and provincial governments for assistance?

It is not standard government policy to pay for mine development infrastructure; the capital is usually sourced from the private sector. However, a government could become involved when the infrastructure would benefit the community.

## What are the challenges associated with operating, designing, and managing projects in Canada's north?

The big challenge is logistics from an operational and construction perspective: sourcing constructional materials, transporting construction and process equipment to the project site and working in harsh climatic conditions can be difficult; and from an engineering design perspective there are challenges relating to the extreme cold. Further considerations are: lack of power supply; sourcing and transporting personnel to work at the remote

sites; and negotiations with First Nations stakeholders. All these logistic challenges add cost and time to mining developments.

## How best do you engage with local communities to ensure that they are supportive and share in a mining project; and would you form joint ventures with aboriginal corporations?

The client and stakeholders have to work together and mutually agree the best deal for all parties for the extraction of the resource. We abide by the law and engage with the local community when providing our service offering on site. We have on occasions joint ventured with aboriginal corporations when it makes business sense to do so, for example, the Cree Nation in Quebec.

## How have you overcome the shortage of skilled engineers whilst you have been forming your mining service offering?

Locations have to be strategically chosen where there is available suitable labor; for example, we started in Australia where the labor market accommodated our needs, likewise in Montreal and Toronto; albeit there is global market competition for the labor. AECOM is in a position where we can leverage our global resources to provide local solutions.

Where would you hope to see AECOM's mining team in five years' time? My vision for AECOM is to be number one in its engineering service offering to the mining sector, and earn a leadership standing in mining we have in civil infrastructure. AECOM is committed to succeeding in the mining sector and accordingly financed to grow substantially in this industry. •



Courtesy of Anthill Resources Ltd.



# Into the Future: Company Guide, Index, Media and Events

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“In general I think Canada is a very politically stable country, which is why I have decided to move my primary focus to Canada, and to give everything I have into our Canadian projects. I am very happy to do what I am doing here, and I believe Canada is a very safe country to invest in.”

- *MingAn Fu, President,  
Anthill Resources Ltd.*

# Events and Media

There are a plethora of media sources devoted to the mineral industry of Canada, far too many to list here. Engineering and Mining Journal ([www.e-mj.com](http://www.e-mj.com)), who GBR are proud to partner with, remains the benchmark for mining information around the world. Also of particular interest to Canada's territories, given the increasing interest from Chinese investors, is NAI 500 news source ([en.nai500.com](http://en.nai500.com)) and the sister company NAI Interactive ([www.nai-interactive.com](http://www.nai-interactive.com)), the leading investor relations and public relations company for companies looking towards the Chinese investor market. In addition, there are numerous events each year focused on Canadian exploration and mining. A selection of upcoming events in 2013 are listed below:

## January 20 to 21, Vancouver

Vancouver Resource Investment Conference  
[www.cambridgehouse.com](http://www.cambridgehouse.com)

## January 26, Vancouver

Global Chinese Investment Forum  
[www.gcff.ca](http://www.gcff.ca)

## January 28 to 30, Vancouver

AME BC Mineral Exploration Roundup Conference  
[www.amebc.ca](http://www.amebc.ca)

## March 3 to 6, Toronto

PDAC 2013  
[www.pdac.ca](http://www.pdac.ca)

## April 5 to 6, Calgary

Calgary Energy & Resource Investment Conference  
[www.cambridgehouse.com](http://www.cambridgehouse.com)

## April 19, Saskatoon

Saskatchewan Investment Conference  
[www.cambridgehouse.com](http://www.cambridgehouse.com)

## May 5 to 8, Toronto

Canadian Institute of Mining Annual Convention  
[www.cim.org](http://www.cim.org)

## May 26 to 27

World Resource Investment Conference  
[www.cambridgehouse.com](http://www.cambridgehouse.com)

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<b>Government, Organisations and Associations</b>		
CanNor (Canadian Northern Economic Development Agency)	<a href="http://www.hc-sc.gc.ca">www.hc-sc.gc.ca</a>	13
Department of Economic Development & Transportation (Government of Nunavut)	<a href="http://www.gov.nu.ca">www.gov.nu.ca</a>	88, 92, 120
First Nation of Na-Cho Nyak Dun	<a href="http://www.nndfd.com">www.nndfd.com</a>	17, 21, 44, 52, 142
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Minister of Finance, Env. & Nat. Resources, Govt. House Leader (Government of NWT)	<a href="http://www.gov.nt.ca">www.gov.nt.ca</a>	70, 71
Minister of Ind., Tourism, and Investment (Government of NWT)	<a href="http://www.gov.nt.ca">www.gov.nt.ca</a>	70, 118
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Constantine Metal Resources Ltd.	<a href="http://www.constantinemetals.com">www.constantinemetals.com</a>	40, 42
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Emco Frontier Mining Ltd.	www.emcoltd.com	
EPS Environmental Refueling Systems Inc.	www.envirofuel.ca	
MICROMINE (Intuitive Mining Solutions)	www.micromine.com	
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Runge Mining (Canada) Ltd.	www.runge.com.au	65, 133
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Yukon Energy Corp.	www.yec.yk.ca	26, 33, 44, 52, 54, 63, 117, 118, 124

This list represents a selection of the companies operating in the Territories minerals industry and should not be considered a comprehensive guide. GBR holds an exclusive and extensive mining database for Canada and the wider region. For further information on database access packages, please contact info@gbreports.com or call +44 20 7612 4511.



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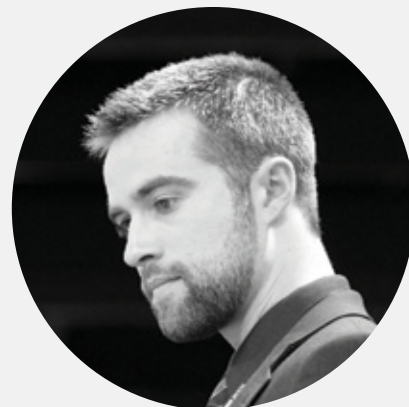
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# Interview with Jay Martin

DIRECTOR OF BUSINESS DEVELOPMENT, CAMBRIDGE HOUSE INTERNATIONAL INC.



**The Cambridge House conferences have been around for 17 years, how have we seen these conferences change over the years?**

Cambridge House is an investment conference company; and we are more a part of the resource investment community than any other conference company. Cambridge House is here to support the junior mining industry; our mandate is to promote investment in the junior sector by connecting the companies with the investment community. Over the years we have experienced several economic cycles that force us to trend with the market. We adjust our conferences to the present investor climate. Our team is very motivated, hardworking and have a real sense of ownership; we try to bring some enthusiasm and communicate that excitement of Howe street: the fears, the challenges, the highs, and the lows of the junior market, which is what the junior investment market is all about.

**Out of any other international conference Cambridge House is the one most integrated with the mining industry. Could you expand on this?**

Cambridge House is the most integrated international conference in the junior mining sector. Our head office is located in the heart of the junior exploration sector. Sixty percent of juniors listed on the TSX-V are headquartered right here in Vancouver and we know every one of them; we know the players personally and run into them daily. We have seen companies come and go but the players stay the same. We are known amongst the juniors as not just another place to market but as a place that will support them even when the resource market is at a downturn. When the industry is hurting we do our best to put on a world-class show.

**Could you give us a break down of your upcoming show in January in terms of number of attendees and the percentage of national versus international at-**

**tendees?**

At the 2013 conference we forecast 12,000 delegates to come through the front door. I expect around 500 exhibitors that represent about 600 companies. As far as international attendance goes generally we see 15% from outside of Canada, a large proportion from the United States. When people are buying stocks no one buys more stocks than the Americans. We are also seeing increased numbers of Chinese investors as it becomes easier for them to invest in Canadian markets.

**How do you feel the Cambridge House conferences have changed with the increased interest from the Asian market in Canadian juniors?**

It is important to recognize the increased interest from Asia in the junior market and Cambridge House has been very proactive in supporting and encouraging this trend. We have catered our services to the increased audience. One company we have partnered with: Koi Communications, leads small tours around our show floor to help with language barriers, and introduces them to companies and delegates.

**What themes or aims will the Cambridge House 2013 conference be focusing on?**

Although the investor sentiment is very apprehensive at the moment, we are trying are best to communicate that the resource market is the best place to invest. With an estimated 2 billion people forecasted to join the middle class by 2030; the demand for resources will only increase. Supply of these resources is limited but demand is exponential.

**The junior market right now is quite different from last year; has this affected attendance?**

The market definitely affects the attendance; both investors and juniors take a back seat when the market dips. This is

ironic because stocks are the one thing that people won't buy when they are on sale. We will not see buying opportunities like this for a while, but we understand their concerns. Some call this the bottom, but others see it as the crest of bigger things to come. As a conference company we have the opportunity to communicate the fact that there is a real demand for the commodities that these companies are searching for. This demand will not disappear because the market is in a downturn, these resources are required and necessary and it is the job of these juniors to find them. We showcase these juniors and promote them through downturns.

**Looking towards the future, what is the vision for Cambridge House in Vancouver?**

There are tremendous opportunities for us and as an established resource and investment conference we are always looking to try new ventures. One venture is to migrate towards media distribution. We are able to bring in some of the top analysts, investors, geologists, and industry specialists that people need to hear from to understand the industry. There is a big demand to hear from these specialists that makes our shows very successful. While we have only seven shows per year, the demand for information is always present and we are finding ways to service that demand on a more frequent basis. A few initiatives are: the Cambridge House blog, where we publish mining news and stories, and Cambridge House Live, a video series showcasing mining experts, financial media draws, and interviews explaining the current state of the financial resource market. We are continuously working on attracting new investors to the resource market by promoting the junior explorations industry. •



# Interview with Gilbert Chan

PRESIDENT, NAI INTERACTIVE LTD.

## Can you give a brief history of NAI Interactive and its presence in the Canadian mining industry?

Established in 1998, NAI Interactive is a leading IR/PR engine for North American public companies to gain exposure to the ever-expanding Chinese investor market. Being a major subsidiary of ChineseWorldNet.com Inc, NAI represents a communication bridge between public companies and Chinese investors, allowing them to develop working relationships and form functional networks through our unique platforms. Throughout the years, NAI has been the most trusted firm in providing meaningful information to Chinese investors. NAI is well-positioned to focus on the mining and energy sector and have branched out to establish ourselves in marketing specific sectors. Currently, mining accounts for approximately 90% of our clientele. We opened our first office in Vancouver, 1998, followed by an expansion to Toronto in 2001.

## What does NAI Interactive do to keep its clients abreast of market trends?

We can help Chinese investors gain awareness of our clients' financial products and services such as corporate stocks, ETFs, foreign exchange platforms and other wealth management related products. Via our different platforms including NAI500.com, GCFF conferences, road shows and other IR/PR outreach programs, the companies can access the Chinese investor community in the most effective manner. Generally speaking, there has been a real lack of information on investing, especially in the junior mining and resource market, in the Chinese media. There are many people who want to get involved in the Canadian mining industry, but they do not know where to start; our company is here to help build that knowledge and expertise base, so as to allow them make the most informed decisions before investing.

## What services do you offer particularly for mining clients?

Our services are split into two levels,

basic and advanced. In order to attract investors, you need to have your information prepared, which is what we do in our basic package. We work with the client to produce an informative website, fact sheet, PowerPoint presentation, and press release; these materials are the minimum required, and they must be in Chinese, so as to make the information accessible to all of the potential investors. We then market these materials through our platform, meaning our website, the existing client database, emails, and newsletters. The core of our work is disseminating this information, trying to start some good conversations. Our advanced services are for companies that have already discovered something that shows good economics that has the real potential to be mineable. We bring these clients to China to do road shows, meeting with a lot of high net worth individuals, institutional investors, and industrial investors (corporations operating businesses in that sector). A lot of the work we have been doing in the last two years is separating these three tiers of investors, to allow us to best take these companies to the next level.

## In terms of understanding the mining industry market in Canada, what are some common misunderstandings between Chinese investors and companies in Canada?

A trend we have seen over the last three years—not just in the Yukon, but globally—is that a lot of Chinese investors have been sold on projects by someone they consider a friend, so they have not done thorough due diligence on the merit of the project. Once they take over the project, they often face a set of challenges that come with not knowing how mining works in whatever jurisdiction. For example, many Chinese companies are not familiar with the environmental regulations in Canada, and they have never had to deal with First Nations before, as those do not exist in China. On the capital side, the Chinese investors can always bring in the money

that buys the expertise. When it comes to technology and expertise in mining exploration in China, they are probably at least 20 years behind what we have here. For this reason, they need a lot of Canadian experts, people who understand the technological aspects of how to run the project most efficiently. Taking a step back, there are basic cultural differences in how projects are approached. Canada emphasizes carefully planned and detailed studies, and lots of modeling. In China, if the resource is there, the attitude is to mine now and worry about the rest of it later. This is a significant difference in business philosophy, which requires a lot of discussion.

## What are some misconceptions in the Canadian market about Chinese investors?

One of the misconceptions is that Chinese investors, especially state-owned enterprises, require a longer time to make an investment decision. This is true in the earlier dates when Chinese groups were still not experienced in investing overseas assets. And the transactions with the involvement of a state-owned enterprise took longer as all the information were required to report to a council, who must give its approval before the money can change hands. However, as times passed by, Chinese investors are keener in overseas investments and more infrastructure are built in, as a result, more transactions have been done swiftly and efficiently. Having said this, Chinese are still very prudent in their decision-making whether it is \$500,000 or \$15 million; they want to make sure that everything will fall into place before they invest any money.

## Looking forward, what vision do you have for NAI Interactive and its role in the North?

We see good potential and great resources here, as well as major infrastructure challenges. We think this is an opportunity for the Chinese investment community to provide the capital necessary to facilitate the growth of infrastructure, which facilitates the production timeline of these mining projects. A lot of Chinese money has been flowing into the Canadian mining industry, being backed by quite a few companies who aspire to be international players. In five years, you can expect to see one of these companies emerge as a real industry heavyweight, and for now it is a waiting game to see who that will be. •

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[www.hc-sc.gc.ca](http://www.hc-sc.gc.ca)

**Government of Nunavut**

[www.gov.nu.ca](http://www.gov.nu.ca)

**First Nation of Na-Cho Nyak Dun**

[www.nndfd.com](http://www.nndfd.com)

**Geological Survey of Canada**

[www.nrcan-rncan.gc.ca](http://www.nrcan-rncan.gc.ca)

**Government of the Northwest Territories**

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**Natural Resources Canada**

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**NWT & NU Chamber of Mines**

[www.miningnorth.com](http://www.miningnorth.com)

**The Canadian Institute of Mining, Metallurgy and Petroleum (CIM)**

[www.cim.org](http://www.cim.org)

**The Mining Association of Canada**

[www.mining.ca](http://www.mining.ca)

**Yukon Chamber of Mines**


[www.yukonminers.ca](http://www.yukonminers.ca)

**Yukon Government**

[www.gov.yk.ca](http://www.gov.yk.ca)

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