

GLOBAL BUSINESS REPORTS

INDUSTRY EXPLORATIONS



BRITISH COLUMBIA MINING & VANCOUVER: THE WORLD'S MINING BAROMETER 2014

Economy - Mining in British Columbia - Vancouver as a Center for Exploration and Development - Services

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Dear readers,

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Congratulations to Global Business Reports on this edition of their extensive and informative Industry Exploration book.

Here in British Columbia, the mining industry supports thousands of well-paying, secure jobs for families in communities throughout our province, while infusing \$8.3 billion into our economy.

Quite simply, mining builds strong communities. All across British Columbia, you will find communities sustained by mining projects. Today, the average salary in the mining industry is \$121,000 including benefits, which provides stability and opportunity to thousands of families.

Mining also employs more First Nations people than any other industry in Canada. Revenue sharing agreements in British Columbia are helping provide important services First Nations communities need, while training programs are ensuring First Nations workers have the skills they need to take advantage of new job opportunities. For example, nearly one quarter of workers at the recently opened New Afton mine near Kamloops are Aboriginal, and many were participants in the British Columbia Aboriginal Mine Training Association program.

The long-term outlook for mining in British Columbia is very positive. As committed in the BC Jobs Plan, eight new mines will open and nine will be expanded by 2015. Over twenty

major mine project proposals are currently moving through British Columbia's environmental assessment and permitting processes, which is a positive sign of a healthy sector today and for the future.

Something that I and of course anyone with a family member working in the mining industry knows is the need for safety in the mining industry, and that's we should all be proud of the mining industry's record as one of the safest heavy industries in British Columbia. Each year, British Columbia promotes best practices in health, safety and environmental sustainability, and we will continue to work with industry to support and recognize important safety initiatives.

Together with industry, my colleagues in government and I want to ensure that British Columbia remains a desirable place to invest, explore and develop mineral resources for many years to come.

**The Hon. Bill Bennett,
Minister of Energy and Mines,
British Columbia**

Industry Interviews

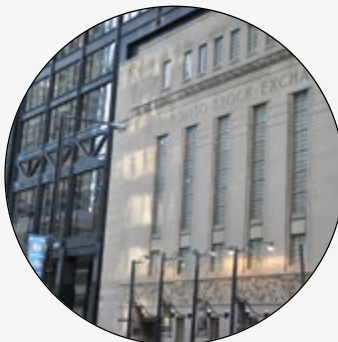
Exclusive interviews with the leading industry figures in Vancouver's mineral industry, whether operating at home or abroad, including Hunter Dickinson, B2Gold and Pretium Resources.



32, 41, 112

Analysis

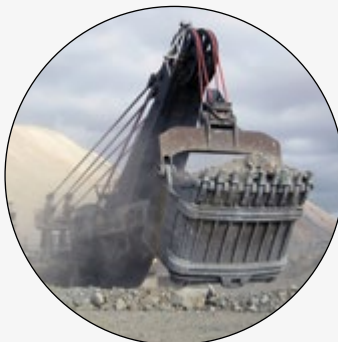
Viewpoints from the GBR on-the-ground team on the reasons for optimism in British Columbia's mining industry and alternative financing methods for Vancouver's juniors.



33, 56

Expert Opinions

A number of companies lend their expertise on subjects ranging from mine efficiency to workforce management and optimization to improving safety and environmental standards.



30, 64, 72, 74, 84, 86, 98

Reference Maps

Two maps list the projects and companies discussed in our editorial, both in British Columbia and worldwide, in order to provide ease of reference for our readers.



18, 19, 38, 39

Travel

Vancouver is the world's mining playground, host to numerous conferences, exhibitions and meetings. We explore where to stay and what to do for the mining executive.



116-129



BEAUTY AND THE BEAST

An Introduction to British Columbia, Vancouver and the Mining Industry

- 8. An Introduction to British Columbia and Vancouver: A brief overview of the province and economy
- 10. Interview with the Ministry of Energy and Mines
- 11. Mining in British Columbia: Bears in the market
- 12. Interview with McCarthy Tétrault LLP
- 13. Interview with the Association for Mineral Exploration British Columbia (AME BC)

A BRIGHT FUTURE AHEAD

Exploration and Production in British Columbia

- 16. Attracting Exploration Expenditure: Fighting for a larger slice of a smaller pie
- 17. Interview with Colorado Resources Ltd
- 20. Interview with Yellowhead Mining Inc.
- 21. Interview with Happy Creek Minerals Ltd
- 22. Development and Production: British Columbia on the horizon
- 23. Infrastructure Development
- 23. Interview with BC Hydro Power Smart
- 24. Interview with Copper Mountain Mining Corp.
- 27. Interview with Seabridge Gold Inc.
- 28. Interview with Avanti Mining Inc.
- 30. Expert Opinion by Knight Piésold Ltd
Integrating Engineering & Environmental Concepts for Mine Development
- 31. Interview with West Cirque Resources Ltd
- 32. Interview with Hunter Dickinson Inc.
- 33. Analysis

Better Days to Come: Mining in British Columbia in 2014

VANCOUVER

The World's Mining Barometer

- 36. An Introduction to Vancouver: A brief overview of the world's mineral hub
- 40. Gold
- 41. Interview with B2Gold Corp.
- 44. Interview with Cayden Resources Inc.
- 45. Interview with Lupaka Gold Corp.
- 46. Silver
- 48. Interview with Bear Creek Mining Corp.
- 49. Interview with Canarac Resource Corp. and Endeavour Silver Corp.
- 50. Copper
- 51. Interview with Tintina Resources Inc.
- 52. Interview with Panoro Minerals Ltd
- 53. Potash
- 53. Interview with Western Potash Corp.
- 54. Lithium
- 54. Interview with Western Lithium USA Corp.
- 55. Uranium
- 55. Interview with Fission Uranium Corp.
- 56. Analysis

Canadian Juniors: Looking to M&A and foreign deals

SUPPORT IN DIFFICULT TIMES

Greater Vancouver's Service Sector

- 60. Greater Vancouver's Service Sector: The backbone of a global industry
- 62. Interview with Knight Piésold Ltd
- 63. Interview with Hatch Ltd
- 64. Expert Opinion by McElhanney Consulting Services Ltd
Integrating Mine Design and Environmental Studies
- 65. Interview with McElhanney Consulting Services Ltd
- 66. Interview with Tetra Tech Inc.
- 67. Labor Shortages, Safety and Automation: Searching for new skills and solutions
- 69. Interview with Delta Pacific Benefit Brokers Ltd
- 70. Interview with Rakia Recruiting
- 71. Interview with Motion Metrics International Corp.
- 72. Expert Opinion by SkillPlan
Workplace Training to Address the Anticipated Skills Shortage
- 73. Interview with SkillPlan
- 74. Expert Opinion by Wenco International Mining Systems Ltd
Full Value Creation of Physical, Human and Business Assets

- 74. Interview with Wenco International Mining Systems Ltd
- 76. Changing Treatments: Water Treatment and Environmental Regulations
- 78. Interview with Fluor Canada Ltd
- 80. Interview with O'Kane Consultants Inc.
- 81. Interview with TOMRA Sorting Solutions
- 82. Interview with CH2M HILL Canada Ltd
- 83. Interview with Xstrata Technology Ltd
- 84. Expert Opinion by CH2M HILL
Creating Anaerobic Environments to Control Acid Generation in Pyritic Material

- 86. Expert Opinion by Gekko Systems
Reducing Operating Costs in Cyanide Detox Circuits
- 87. Interview with Gekko Systems
- 88. Interview with Snowden Mining Industry Consultants
- 89. Quality Control: Mineral testing and processing
- 91. Interview with Met-Solve Laboratories Inc.
- 92. Interview with RMS-Ross Corp.
- 93. Interview with AMC Consultants (Canada) Ltd
- 94. Reduce and Reuse: Helping miners to control costs
- 96. Interview with Superior Propane
- 97. Interview with ABC Recycling Ltd
- 98. Expert Opinion by Pacific Blasting and Demolition Ltd
Safety, Productivity, Quality Workmanship, Professionalism and Integrity: A Specialist Mining Contractor
- 99. Interview with Pacific Blasting and Demolition Ltd

THE VITAL INGREDIENT

Engaging with Local Communities

- 102. Corporate Social Responsibility: Setting the standard
- 104. Interview with ERM Rescan

- 105. Interview with China Gold International Resources Corp. Ltd
- 106. Interview with Victoria Gold Corp.
- 107. Interview with NOVAGOLD RESOURCES Inc.
- 108. Aboriginal Relations: Putting the First Nations first
- 110. Interview with the First Nations Energy and Mining Council of British Columbia
- 111. Interview with Miller Thomson LLP
- 112. Interview with Pretium Resources Inc.
- 113. Interview with Lawson Lundell LLP

VANCOUVER

The World's Mining Playground

- 116. Vancouver and its backyard
- 118. Interview with Rosedale on Robson Suite Hotel
- 119. Interview with Westcoast Resorts
- 120. Interview with Days Inn
- 121. Interview with Hampton Inn & Suites Hotel
- 122. Hotel Directory
- 124. Interview with Coal Coast Harbour Hotel
- 125. Interview with Vij's
- 126. Events and Media
- 128. Interview with the Prospectors and Developers Association of Canada (PDAC)
- 129. Index & Company Guide
- 130. Credits

This research has been conducted by Katie Bromley, Alexander Corbeil, Sholto Thompson and Josie Perez Edited by Barnaby Fletcher

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Beauty and the Beast:

An Introduction to British Columbia, Vancouver and the Mining Industry

"Vancouver is a very interesting hub for mining. British Columbia was built on mining and it continues to be an important industry within the province. When the Vancouver Stock Exchange was established, it was primarily utilized by junior mining companies. Expertise built up around the exchange and it subsequently became the TSX Venture Exchange: as a result, mining companies and the supportive industries have remained. Vancouver's location is also extremely convenient for crucial jurisdictions in global mining; including the Pacific Rim, Central and South America and the Western United States."

- Josh Lewis, Partner and Global Mining Group Coordinator,
Fasken Martineau DuMoulin LLP





An Introduction to British Columbia and Vancouver

A brief overview of the province and economy

British Columbia is consistent. This description may seem slightly dull in describing a province whose motto, *Splendor sine Occasu* (Splendor without Diminishment), aptly describes close to a million square kilometers of some of the world's most pristine natural beauty. Yet in economic terms, it is apt. Consecutive years have seen British Columbia's main indicators – GDP, GDP per capita, GDP growth – compare favorably to its Canadian provincial peers, yet rarely outperform them. In 2012 the province ranked fourth in GDP growth rates; in 2013 it slipped below its normal third or fourth place ranking to seventh. Demographically the situation is very similar, with British Columbia the third largest province in the country.

Being a consistent performer in Canada, a country that weathered the global financial crisis better than the majority of its OECD peers and boasts the 14th largest economy in the world, is not a bad place to be. Yet over the next few years there is a good chance that British Columbia will stop being a reliable performer, and start rising to the top of Canada's rankings.

British Columbia is expected to be the third fastest growing province in Canada in 2014 and 2015, according to RBC bank, behind the oil-driven economy of Alberta and Ontario, where renewed growth in the USA will boost exports. Respectable figures of 2.4% and 2.8% are expected for the respective years, a welcome increase from 2013's 1.2% growth.

Supporting this growth is British Columbia's diversity. In a range of sectors British Columbia enjoys a diversity that protects it from significant downside and forms a strong basis for future growth. More than any other province, British Columbia enjoys a diversified market for its exports, being the only Canadian province that relies on the USA

for less than 50% of its international merchandise trade. With its Pacific Ocean coast, it can access the fast-growing Asian markets: markets that are expected to continue leading the world's economic growth over the next few years, according to IMF figures. The province's access to these markets will grow increasingly easy with a number of proposed infrastructure developments, including a \$2-billion container terminal at Roberts Bank and a \$275 million rail expansion project.

\$219.99
BILLION
GDP

(current US dollars) 2012

Source: World Bank

Prospects for British Columbia's natural resource sector also look positive. Many are predicting that the prospects for mineral exploration and mining, recently so dim around the world, will start to improve in 2014: British Columbia, which produces an astonishing array of minerals – including copper, gold, iron ore, molybdenum, silver, zinc and coal – and is home to Vancouver, the world's exploration capital, will greatly benefit from any upswing in the industry's fortunes. Vancouver, home to an estimated 1,200 junior exploration companies, enjoys the world's largest diversity of mining interests, both in terms of minerals and jurisdictions, with projects ranging from early-stage exploration to commercial mines in

the Americas to Asia, Africa and Europe. This broad range may not have completely protected it, but it will allow it to benefit from any improvement in the mining market.

The province's oil and gas sector will become an increasingly important contributor to the economy provided that a range of liquefied natural gas plants and pipelines begin construction in the next couple of years as planned. Currently over a dozen projects are being considered, some of which already have environmental licenses. The forestry sector, the third main pillar to British Columbia's natural resource economy, is already showing signs of improvement as the US housing market recovers.

British Columbia cannot take improvement for granted. Its massive infrastructure plans require time and substantial capital expenditure, and face a host of complaints and opponents from concerned environmental groups, among others. Agreements must be reached with the federal government, neighboring provinces (relations between the Alberta and British Columbia premiers over a heavy-oil pipeline have, at times, been strained) and First Nations groups. Unemployment, at 6.6%, is expected to decline slower than economic growth rises: a small decrease at the end of last year is due more to a decrease in labor market participation and migration to provinces such as Alberta than a growth in jobs.

British Columbia can fairly easily remain consistent as always. The housing market has stabilized and retail sales are set to grow, and credit for these improvements arguably lie in an improved economic outlook for Canada as a whole and trading partner the USA. A recently reelected Liberal Party, however, appears determined to take bold steps in order to achieve results better than merely "consistent".

British Columbia at a Glance

Source: CIA World Factbook

Population: 4,606,375 (Oct 2013 estimate)

Capital: Victoria

Head of Government: Premier Christy Clark (BC Liberal)

Currency: Canadian Dollar (CAD)

GDP: \$219.994 billion (2012 estimate)

Growth Rate: 1.4% (2013 estimate)

GDP per Capita: \$45,993 (2012 estimate)

Economic sector breakdown: goods: 22.5%, services: 77.5% (2012 estimate)

Exports: \$84.345 billion (2012): wood products, coal, natural gas, copper and other mineral products, agricultural products, machinery and equipment

Imports: \$107.895 billion (2012): oil products, automobiles, clothing

Major Trade Partners: USA, China, Japan, South Korea

1.4%

GDP Growth Rate

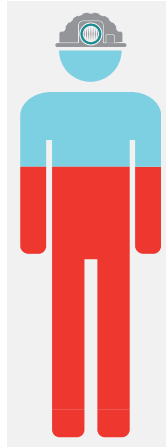
2013 estimate

Source: World Bank

Population and Workforce information

Source: Various

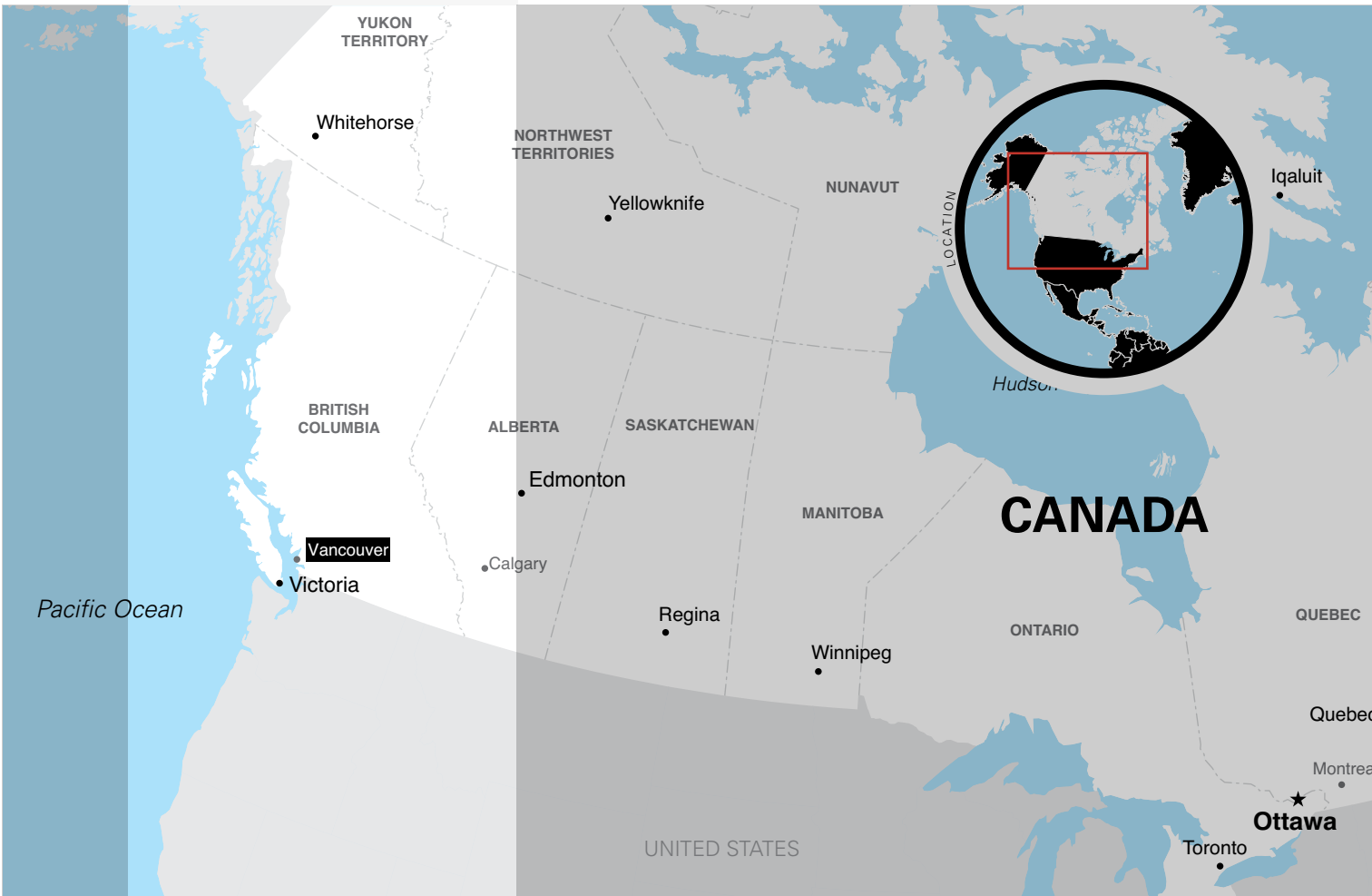
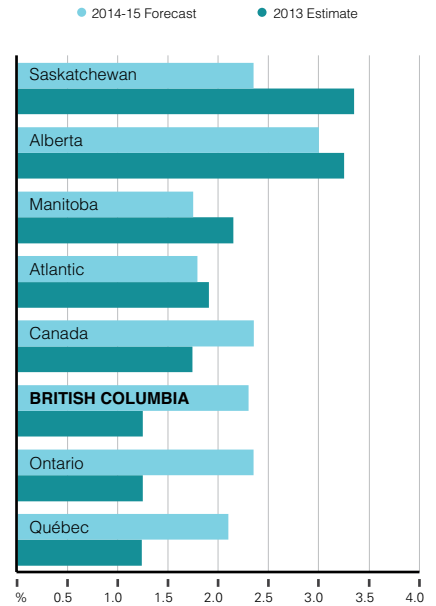
Population 2013 (15+)
3,874,800



- Labor Force 2013: **2,472,500**
- Not in Labor Force 2013: **1,402,300**
- Employed 2013: **2,309,500**
- Unemployed 2013: **163,400**

Forecast GDP Growth by Province

Source: Statistics Canada



INTERVIEW WITH

The Hon. Bill Bennett



MINISTRY OF ENERGY AND MINES
MINISTER RESPONSIBLE FOR CORE REVIEW
BRITISH COLUMBIA

The reelection of the provincial Liberal government was greeted with a collective sigh of relief among British Columbia's mining sector. This was largely based upon your government's commitment to provincial economic growth, with an emphasis on the importance of mining. Could you please reiterate your government's position on the industry?

Many British Columbians were not surprised by the Liberal election victory and as an experienced politician, who traversed the province prior to the election, it was clear that the population approved of the general direction in which we had taken the economy. Premier Clark was seen almost every day of the campaign discussing the economy and the issue of employment. The mining industry is one of the core economic drivers of the province and voters realized that a Liberal government is better for both mining and the overall economy of the province. I personally come from the coal region of southeast British Columbia and there are a total of five coal mines in my riding. Given our success at the polls, the provincial Liberal government has been provided with a mandate to continue to develop policies that encourage mining investment, development and the training of skilled workers. It has also encouraged us to feature mining in our jobs plan and to provide the industry with a larger portfolio in our government than ever before. I was the Minister of State for Mining from 2005 to 2007 and with our current goal of bringing eight new mines into production it is one of the most ambitious plans for the industry in the history of this province.

One of the biggest issues facing the mining industry in British Columbia is the lack of skilled labor. The provincial government has

put forward a number of initiatives meant to train individual for this sector, could you touch of a few of these?

There will not be a singular solution to meet the challenge of skilled labor over the next 20 to 30 years. The government will have to deliver a diverse suite of initiatives to deal with this issue. This is of course in combination with private sector, which has a large role to play in the development of mining related jobs in British Columbia. With regards to the government's role, I recently announced \$184,000 in funding for the Peace Region that will allow a school counselor to work within the entire school district for two years. This counselor will work with faculty and administration to ensure that students are aware of opportunities in the trades. The provincial government will look to replicate this program and ensure that young individuals are made aware of these opportunities while still in high school. Investment is also required in the area of advanced education and the provincial government will look to unveil some new initiatives to address this issue in the future.

First Nations relations with the mining will represent a significant theme of this report. What role do you believe the provincial government should play in ensuring the participation of indigenous groups and persons in the industry?

The Constitution of Canada provides First Nations governments with a legal status that is *suis generis*, of its own kind. These bodies are recognized by the Supreme Court of Canada as a form of government and it is highly important that First Nations feel they are negotiated with on a government-to-government basis. To put it plainly, it is about respecting the rights of First Nations groups in the province. The provincial

government will continue to hire mediators and utilize the provincial staff to work with First Nations through difficult issues. I believe that our province is ahead of the rest of the country in terms of how we relate with our indigenous peoples. It has been an evolutionary process, one based upon the lack of concrete treaties in British Columbia. This provided an opening that allowed the provincial government to learn how to consult with these groups and the government has proven that it can do so effectively.

Where will we find the province from a mining perspective in two to three year's time?

Global Business Reports will find First Nations that will have received their revenue share from mining on a regular basis. This will provide them with the capacity to improve their communities, housing, education and all matter of services. I believe you will see more buy-in from First Nations groups, both from those receiving a share of the revenue and others in mining districts. By 2015 the Province expects to have achieved the BC Jobs Plan goals for mining of eight new mines and nine expanded. New Afton and Mt Milligan mines will be well established and in their fourth and third years of production respectively, and I fully expect the Red Chris Mine to be operating and connected to the Northwest Transmission Line. •

Mining in British Columbia

Bears in the Market

The provincial mammal endemic to British Columbia is the Kermode bear, a black bear with white fur due to a recessive genetic trait. Bears and recessive traits are fitting words to describe the state of the mining industry in the province, and indeed the world, since Global Business Reports last covered British Columbia in 2011. Yet with an abundance of natural resources, progressing infrastructure development and a new term in office for the mining friendly Liberal Party, a new dawn for the industry lies ahead.

British Columbia has all the characteristics of a first-class mining jurisdiction: access to booming Asian markets, good infrastructure, skilled labor, a pro-mining government and bounteous natural resources. As Elmer B. Stewart, president and CEO of Copper Fox Metals Inc. – who have attracted the interest of giant Teck Resource Ltd in their Schaft Creek copper project in northwest British Columbia – explained, “British Columbia is essentially a resource province. Resource development along with good environmental stewardship can create significant economic benefit for British Columbia.”

The province is also home to Vancouver, the world’s exploration capital. With around 1,000 junior mining companies and 2,500 service companies, the city has grown from a staging post for the Klondike Gold Rush to a global mining hub. Vancouver-based mining companies now operate worldwide from Chile’s Atacama Desert to the jungles of the Democratic Republic of the Congo. “Vancouver, as an incubator for new ideas and ventures in the mining world, and one of few locations where one can obtain capital for mining projects, is the Silicone Valley of mining and best place to start a mining vehicle operating anywhere in the world,” said John Roozendaal, president and director of VMS Ventures Inc., which is focused on defining

volcanogenic massive sulfide deposits in Manitoba

As well as plentiful resources of gold, silver, zinc, lead and industrial minerals, British Columbia is Canada’s primary exporter of coal, largest copper producer and only producer of molybdenum. 2012 was a difficult year as prices for all these commodities, except gold, dropped as a result of slowing demand from China and recession in Europe. Gold ultimately took the plunge in April this year. This drop, combined with rising costs of labor, energy and raw materials hit producers’ bottom lines. According to PwC’s latest survey of mining in British Columbia, 2012 mining revenues dropped to \$9.2 billion from \$9.9 billion in 2011; earnings plummeted to \$1.8 billion, down from \$3.7 billion; and operational cash flow almost halved from \$4 billion in 2011 to \$2.2 billion.

Capital funding evaporated, falling from \$3.3 billion in 2011 to \$94 million in 2012. D. Brent Thompson, president of Mining and Minerals at Tetra Tech, gave an overview of the lack of investor confidence in the market: “Over the last number of years there was lots of money available but investors never saw returns in terms of dividends or share price increase. Combined with global mining trends such as nationalization of mines, increased environmental regulations, sovereignty and tax increase issues, and the ever rising costs which have created a lack of confidence in capital expenditure predictions, the risk-reward balance for the investment community started to become considerably out of sync.” Alan J. Hutchison, a partner at law firm Dentons Canada LLP, further explained the situation. “Many companies have looked to alternative arrangements; including slowing projects down and reducing exploration budgets. This has largely been in reaction to the sense that the market has yet to be re-

sponsive to exploration and developments successes. Given this belief, mining companies are largely preserving capital until fiscal conditions improve. Other clients have looked to finance around their market capitalization levels, due to the fact that many companies are undervalued in the market. For many companies it is has been difficult to finance their operations without becoming incredibly dilutive, and even then capital is expensive. Similarly, debt has been extremely hard to access because of risk-adverse lenders unwilling to commit given current volatility in commodity prices.”

Provinces with the Most Metal Mines (2012)

Source: Mining Association of Canada

PROVINCE	NUMBER OF MINES
Ontario	22
Quebec	19
British Columbia	10

Value of mining (2012)

Source: Mining Association of Canada



- Canada Total: \$46.9 billion
- Ontario: \$9.2 billion
- **British Columbia: \$8.3 billion**
- Saskatchewan: \$8.2 billion
- Quebec: \$8.2 billion

INTERVIEW WITH

**Roger
Taplin**CO-LEADER GLOBAL MINING GROUP
MCCARTHY TÉTRAULT LLP

Over the next 12 months, up to a third of the junior market could disappear. It is argued, however, that this “spring clean” may not be a bad thing due to the profusion of companies vying for market share who were drawn to the industry during the boom years despite no real understanding of mining. There are tough times ahead, but companies with good assets should look to the future with cautious optimism. “It is interesting, for those who are advising mining companies, to see that there is in fact more value in the industry than markets have realized,” said Hutchison.

Indeed, British Columbia has more reason for optimism than most. Urbanization in the developing world is expanding the middle-class consumer base and hence demand for British Columbia’s coal and mineral wealth. In the immediate term, the market presents a rare opportunity for companies to shop for great assets at bargain prices. Hunter Dickinson acquired the Gibraltar mine, during the “nuclear winter” of 1997: the Gibraltar mine is now the second largest open-pit copper-molybdenum mine in Canada.

Most important is the political climate. The last-minute Liberal Party victory in the elections of May 14 elicited a sigh of relief from British Columbia’s mining community, who were bracing themselves for a return to the National Democratic Party (NDP), which caused the stagnation of the 1990s. Coupled with the current investor environment, many believed that a NDP victory would have been the final nail in the coffin for mining in the province. However, despite Premier Christie Clark losing her own seat, the Liberals pulled off a last-minute and unexpected victory, winning 50 seats against the NDP’s 33. With another four years in office and a newly appointed Minister of Energy and Mines, the Honorable Bill Bennett, the Liberals are now pressing ahead plans for growth. “Given our success at the polls, the provincial Liberal government has been provided with a mandate to continue to develop policies which encourage mining investment, development and the training of skilled workers. It has encouraged us to feature mining in our jobs plan and to provide the industry with a larger portfolio in our government than ever before,” said Bennett.

Despite the recent scarcity of financing, over the last decade there has been a major resurgence of exploration interest back to British Columbia. “Last year we saw record-breaking

expenditure of \$680 million in the province, 47% up from the previous year. In 2001, we were only attracting around 5% of overall investment in Canada, which equated to expenditure of around \$30 million. Over the last decade, there have been ups and downs but there has been a general trend up and British Columbia is now attracting around 20% of all expenditures in Canada,” said Gavin Dirom, president and CEO of the Association for Mineral Exploration British Columbia (AME BC).

Dirom puts the resurgence of interest in the province down to stronger commodity price trends and a more favorable public policy with regards to attracting investment in the sector, a view shared by many of the sector’s players (Frank D. Wheatley, CEO of Yellowhead Mining Inc., focused on developing their Harper Creek copper-gold-silver project in south-central British Columbia, spoke to us about the “mining friendly political environment in British Columbia”). Also important to note are geological factors and political issues in competing jurisdictions. “Today, the costs associated with operating in British Columbia are much better aligned, which together with stable mineral tenure and low country risk are making [the province] much more attractive,” said Steve Vanry, chairman of copper- and gold-focused West Cirque Resources Ltd. •

There has recently been a return of miners back to British Columbia due to geopolitical issues around the world. To what extent have you observed a rise in these types of issues?

We have seen an increase in resource nationalism around the world over recent years. There has consequently been an increasing sentiment among investors and mining companies of greater risk aversion and deployment of capital with greater rigor. The traditional spread of 50% of capital raised on the TSX being spent outside the country has started to shift. It is primarily due to considerable investor fatigue, a general decline in commodity prices across the board and increasing difficulties in raising capital. Capital is very risk adverse at present, there is general discomfort around the number of projects that have been affected because of local opposition and unexpected problems around permitting, technical problems and budgetary problems. By that token, many mining companies have returned home because home is what they understand best and home is where they can control the variables in a much more sensible way, despite projects potentially taking longer to permit or being more expensive to build.

Many people are talking about a “spring clean” in the junior market over the next year. To what extent have you seen a shift in demand for your services?

When the market shifts what tends to happen at McCarthy Tétrault, and any other balanced practices, is that the litigation and restructuring practice provides a useful counterpoise to a reduction in business law practice revenues. We have certainly seen an uptake in litigation and restructuring. From a transactional perspective, we have a quality client base that are well funded, innovative and adaptable, and tend to do well even during major change. Admittedly, mining is a cyclical industry and right now it is sick. That said, we have some very high quality junior mining clients who have continued to be able to do deals and raise money, primarily private equity, joint ventures, streaming deals or royalty deals. These companies have realized that the equity capital markets will be closed for some time and they have adjusted. We also see continued activity from China; there has been something of a retrenchment in levels of activity and size of deal but there is still Chinese interest. Finally, we have found that our large international major clients have continued to be good source of work for us, particularly around the disposals they are undertaking. •



INTERVIEW WITH

Gavin Dirom

PRESIDENT AND CEO

ASSOCIATION FOR MINERAL EXPLORATION BRITISH COLUMBIA (AME BC)

The Association for Mineral Exploration British Columbia (AME BC) was founded in 1912. Could you start by providing a brief overview of the association and where your main focus currently lies?

AME BC was founded in 1912 and last year we celebrated our 100th anniversary. We are based in Vancouver and represent over 4000 individual members and over 300 corporate members that are focused on successful and responsible mineral exploration and development. Vancouver is the center for mineral exploration and development in the world; approximately 60% of all publicly listed companies in Toronto, between 900 to 1000 companies, are British Columbia based, primarily in Vancouver.

Last year coal and mineral production contributed \$9.2 billion to the British Columbia economy. How important is mineral exploration as a contributor to the British Columbia economy?

Exploration is the lifeblood of mining; without exploration there will be no new mines and so it is paramount that explorers have access to land in order to make new discoveries. British Columbia is Canada's largest exporter of coal, a leading producer of copper and only producer of molybdenum. It also has an abundance of zinc, lead and precious metals. We are excited to once again see discoveries being made in British Columbia at Pretium's Brucejack and New Gold's Blackwater projects, as well as Colorado Resources' recent drill hole announcement of significant copper and gold mineralization. The future looks bright.

British Columbia hosts the highest concentration of exploration companies in the world. How much investment does the province attract in comparison with the rest of

Canada?

Over the last 10 years there has been a major resurgence in investment and interest back in British Columbia. Last year we saw record-breaking expenditure of \$680 million in the province, 47% up from the previous year. In 2001, we were only attracting around 5% of overall investment in Canada, which equated to expenditure of between \$30 million. Over the last decade, there have been ups and downs but there has been a general trend up and British Columbia is now attracting around 20% of all expenditures in Canada. Much of that investment is going towards advanced development projects such as Brucejack and Blackwater; we hope to see more investment going to grassroots projects such as Colorado Resources so that there is sustainability in the sector going forward. The reasons for this increase in investment are stronger commodity price trends and a more favorable public policy with regards to attracting investment to the sector. Subsequently, we are noticing a return of experienced people who were exploring around the world.

One of the main issues facing the mining industry in British Columbia is the shortage of skilled labor. What is being done to address the issue?

In 2008, our industry formed the B.C. Human Resources Task Force for Mining, Exploration, Sand and Gravel, which looks at all HR considerations such as recruiting new Canadians, youth, women and Aboriginals. The BC Aboriginal Mine Training Association (BC AMTA) grew out of the HR Task Force in 2009 with an initial grant from the federal government of \$4.4 million (plus an additional \$10 million announced in 2012) and the vision to train aboriginals for employment in exploration, development and min-

ing. BC AMTA was established in Vancouver with support from AME BC and the Mining Association of British Columbia (MABC). We are very proud of the association and it is a big success – it will address some of the shortage that we expect to see happen over the long term. At present, however, we are seeing more retention problems than recruitment problems as a result of lack of financing in the sector and companies having to cut exploration programs and lay staff off.

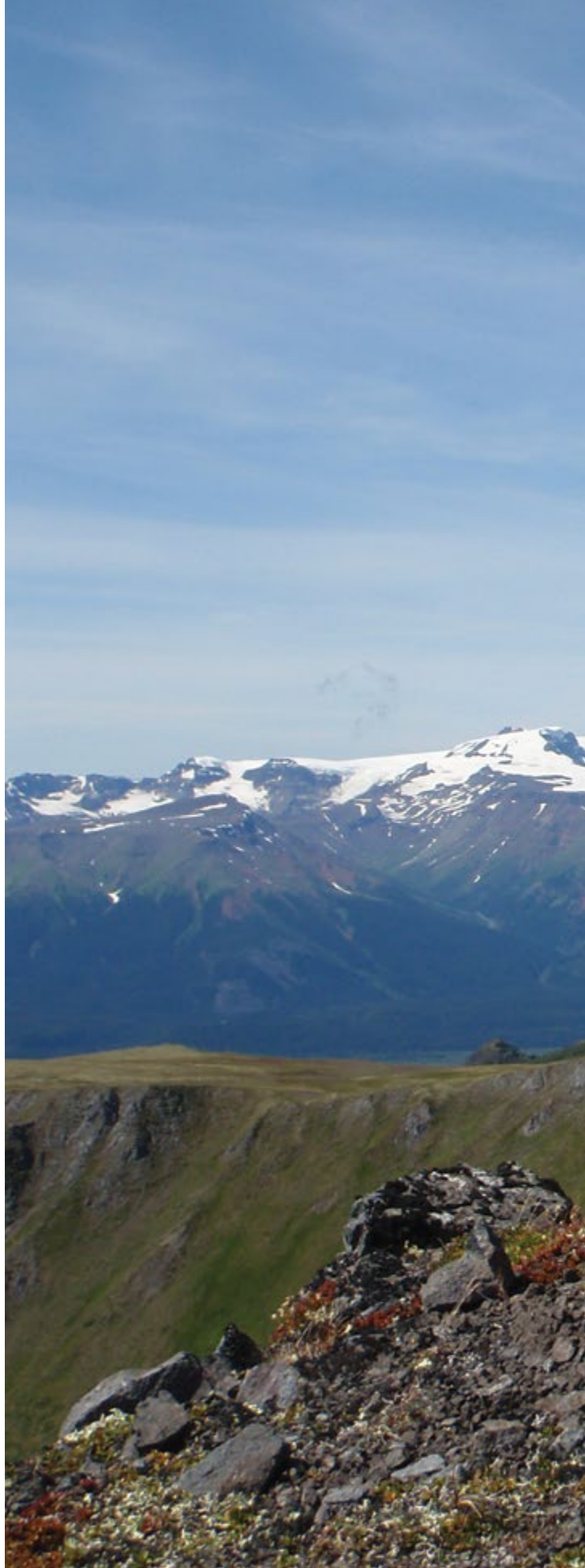
The current junior market is one of the worst bear markets that we have seen in history. What can be done to attract investment in British Columbia during these tough times?

The B.C. government has renewed the 20% mineral exploration tax credit but the mining flow-through share program also needs to be continued. As it stands now, it is being discontinued at the end of the year; so we are asking for a minimum three year extension and, frankly, to make it permanent. The program is very successful and helps to garner investment. Over the last two years, the provincial government has also been working hard to reduce the timeline that it takes for permitting and environmental assessment. A few years ago it took over 100 days to get approval for a permit in British Columbia; the average has now been reduced to 64 days, which is close to their target of 60 days. AME BC has lobbied for many years to streamline the environmental process with federal and provincial governments; this is now happening and will significantly reduce delays. The mantra is "one project one process". British Columbia is also leading the way by sharing benefits with First Nations communities through the mineral tax revenue which is unique and distributes wealth from mining back into First Nations communities directly impacted by mining. •

A Bright Future Ahead: Exploration and Production in British Columbia

"The Northwest Transmission Line is a strong project and it is imperative that northwestern British Columbia is open to development. There are an abundance of mineral resources in this geographical location and a power grid is needed to extract these resources. That being said, the two mines slated for production, Galore Creek Mining Corporation's Galore Creek mine and Copper Fox Metal's Shaft Creek mine will together require 300 MW of capacity. This is more than the power available from the Northwest Transmission Line, opening the doors for independent power companies to take part. In addition to the Northwest Transmission Line, we can expect future development of a Northeast Transmission Line to develop natural resources in that sector."

- G. Henry Ellis, Partner,
Gowling Lafleur Henderson LLP





Attracting Exploration Expenditure

Fighting for a larger slice of a smaller pie

Though Vancouver companies may explore the world, geological riches exist in abundance in their own province. British Columbia, the site of numerous gold rushes in the 19th century, is now seeing increasing interest in its mineral wealth despite the current market conditions, as a rise in resource nationalism in other parts of the world inspire junior explorers to return home. A number of new discoveries have also reminded Vancouver's mining community that they need not travel far to discover world-class deposits.

Two new discoveries which have made waves in the province are New Gold's 100% owned Blackwater project and Colorado Resource's 100% owned North ROK. The Blackwater project is found southwest of Prince George and lies within a structurally raised block called the Nechako Uplift. Measured and indicated resources sit at 7.5 million oz gold and 28.3 million oz silver, while inferred resources total 2.7 million oz gold and 28.3 million oz silver. New Gold will look to continue drilling in the spring of 2014, in view to begin construction in 2015 for an operational start date in 2017.

Colorado Resources' North ROK porphyry copper-gold property is composed of 14 claims, totaling 5,188 hectares, and caused great excitement in the market back in April of this year. The company's first drill hole hit 242 meters of 0.63% copper and 0.85 g/mt gold, sending Colorado Resource's stock to \$1.53 from \$0.15. Colorado Resources is currently in Phase III drilling at the property, having intercepted 177 meters of 0.55% copper equivalent, including 68 meters of 0.79% copper equivalent, this October. According to Colorado Resources' resident and CEO, Adam Travis, there is more excitement to come: "It is too early to predict how large North ROK's mineralization might be. We see all the right rock types and alteration levels [and] there has

been huge interest in the project from the rest of the industry."

It has also been encouraging to see explorers, such as David Blann, president and CEO of Happy Creek Minerals, still actively in the hunt. Blann, inspired by his experience working in exploration, development and production saw a potential niche for an exploration company to focus on proximity to mines and infrastructure. Blann's company has chosen to diversify its mineral exploration activities in search of copper, molybdenum, tungsten, gold and silver. At the company's Fox property in the Cariboo region of British Columbia the company drilled 14.8 meters of 4.0% tungsten trioxide at its hole F12-27. Blann said: "These are arguably the best tungsten drill results for a new discovery in the Western world."

Highlighting the effectiveness of Happy Creek's approach, the company has also had some promising results at its Rateria property; four miles from Teck Resources' Highland Valley copper mine. "What Happy Creek found was similar grade to what is being mined at Highland Valley... drill results include 95 meters of 0.67% copper in Zone 1 and 152.5 meters of 0.35% copper and 0.57 g/mt rhenium in Zone 2. The rhenium values in Zone 2 are actually very high on a global scale and could be a significant credit," said Blann.

These discoveries have been encouraged by a sensible system of incentives put in place by the Liberal administration. As resource nationalism and higher taxes become growing concerns in many formerly friendly mining jurisdictions, British Columbia has become more appealing. "For a long time South America attracted a lot of attention with a lot of great deposits; now they are getting into lower quality and less accessible ones and, combined with the emergence of various geopolitical issues, miners are turning their attention back to British Columbian deposits," said Marcel

Courtesy of Happy Creek Minerals



Bittel, operations manager for Vancouver at EPCM giant Fluor Canada.

Steps taken by the provincial government include renewing the 20% mineral exploration tax credit. The credit is available to corporations engaged in exploration in the province for all base and precious metals, coal and some industrial metals. Many, including AME BC, argue that the government should go a step further and continue the mining flow-through share program, which is due to be discontinued at the end of the year. AME BC is asking for a three-year extension or, preferably, to make it permanent. The flow-through share program has been highly successful in garnering investment by allowing investors in flow-through shares to claim a non-refund-

INTERVIEW WITH

Adam Travis

PRESIDENT AND CEO
COLORADO RESOURCES LTD



able tax credit of 20% of their flow-through mining expenditures in British Columbia.

The provincial government has also been working hard to reduce timeframes for permitting and environmental assessment licenses. A few years ago it took more than 100 days to get approval for a permit in British Columbia; that has now been reduced to around 80 days and they are working to a target of 60 days. Each permit is also confirmed with First Nations approval and environmental assessment. With regards to the latter, the federal and provincial governments are finally streamlining what was a bureaucratic and inefficient system whereby companies had to go through two assessment processes that often overlapped. The new process has been labeled “one project one process.”

The success of these steps has been noted by industry players and has led to an increase in activity. “In the last three to four years, we have been doing much more work in British Columbia. It is an attractive market for us to be involved in,” said Vasee Navaratnam, vice president and general manager of Mining and Metals at Fluor Canada. •

Colorado Resources Ltd is currently very much in the limelight in British Columbia as a result of the recent North ROK discovery. Could you start by talking us through the discovery and its significance?

This discovery hole was not the overnight success it has been quoted as; I grew up prospecting from the 1970s and have worked with an illustrious group of companies over the years. I staked ground in the area with other geologists during the downturn around 2000 and never stopped believing there were good discoveries to be made in that area. Red Chris was 40 years in the making; the turning point up north was the government’s willingness to build the North-west Transmission Line with a \$500 million investment. One exciting aspect of our North ROK property is that it is located 1 km from Highway 37, 15 km from a new mine and just a few kilometers from a new power line. Our discovery was low down in the trees in an area you had to walk into; in the past many companies have flown around in helicopters, looked at the obvious things and generally came away disappointed. We were

fortunate to follow up on the work of a government geologist who, in 1994, took one rock sample in the trees with good early indications. I happened to be in the right place at the right time with my wonderful team. That day we could not schedule a helicopter so we had to walk; the rest is history.

Your stock price shot up from \$0.15 to \$1.53, but then suffered a post-discovery hangover as other drill results were released. How confident are you and the team going forward with the discovery?

Our board and technical team actually feel the project is considerably stronger, technically, than it was when we were trading at twice the current price. When you start off with such a spectacular discovery hole, you then have almost no choice but to disappoint. Colorado Resources had \$8 million in the bank at the time of our last financial report and we are working on closing an announced \$4 million flow-through placement. Our fourth hole, for example, had 205.2m at 0.4% copper and 0.5g/t gold, including 131m of 0.56% copper and 0.68g/t gold. The glass is truly half empty in the market if analysts quote the discovery of mineralization similar to that of a mine opening next door as a ‘miss’. We are back drilling now and have completed a lot of surface work; the size of our geophysical anomalies has increased substantially. We now have a magnetic feature more than 1.2 km long and 300 m wide, and over three drill holes we have 694 m at 0.4% copper and 0.6g/t gold. We are also finding other zones, with another geophysical anomaly more than 1 km to the north. It is too early to predict how large North ROK’s mineralization might be. We see all the right rock types and alteration levels – there has been huge interest in the project from the rest of the industry. •



For a long time South America attracted a lot of attention with a lot of great deposits; now they are getting into lower quality and less accessible ones and, combined with the emergence of various geo-political issues, miners are turning their attention back to British Columbian deposits.



- Marcel Bittel, Operations Manager Vancouver, Mining & Metals, Fluor Canada Ltd



NUMBER	COMPANY	PROJECT	STATUS	MINERAL
1	Anglo American plc	Trend	producing	coal
2	Avanti Mining Corp.	Kitsault	development	molybdenum
3	Barkerville Gold Mines Ltd	Bonanza Ledge	development	gold
4	Canarc Resource Corp.	New Polaris	development	gold
5	Chieftain Metals Corp.	Tulsequah Chief	development	polymetallic

"The feasibility study anticipated a three-year build; however, continued engineering work and an internal study, as well as advice from external consultants, has reduced it to two years by sequencing in parallel both the road construction as well as the mine construction. That puts us well on target for an early 2016 production start. The project's total capital expenditure is approximately \$450 million and with the Royal Gold financing we have approximately \$400 left to finance. We believe, from our extensive discussions with global project banks, that the project debt is somewhere between \$200 million and \$250 million."

- Victor Wyprysky, President and CEO, Chieftain Metals Inc.

6	Colorado Resources Ltd	North ROK	development	copper-gold
7	Copper Mountain Mining Corp.	Copper Mountain	producing	copper
8	Happy Creek Minerals Ltd	Fox	development	tungsten

"The idea of searching for deposits near mines and infrastructure was in view of ensuring lower cost of production. The second facet is, as the phrase goes, 'the best place to find a mine is near a mine'. The diversity of metals is due to the fact that there is always a flavor of the year when it comes to metal types. The goal was to take all the best elements of the market and the elements on which major mining companies are now focused."

- David Blann, President and CEO, Happy Creek Minerals Ltd

9	Happy Creek Minerals Ltd	Rateria	development	copper
10	Hillsborough Resources Ltd	Quinsam	producing	coal
11	Huldra Silver Inc.	Treasure Mountain	producing	silver-lead
12	Imperial Metal Corp.	Red Chris	development	copper-gold
13	Imperial Metal Corp.	Huckleberry	producing	copper-gold-silver
14	New Gold Inc.	Blackwater	development	gold-silver
15	New Gold Inc.	New Afton	producing	gold-copper
16	Pretium Resources Inc.	Brucejack	development	gold
17	Seabridge Gold Inc.	Kerr-Sulphurets-Mitchell (KSM)	development	gold

"Seabridge is fortunate to be a well-funded company, with a very concentrated shareholder base that continues to provide funds when required. With this investor base and our non-core assets we continue to bring in the capital needed to advance these properties through exploration, permitting and final engineering. For the past 10 years we have been able to grow our reserve and resources per share every single year. It is also important that our properties are located in Canada, a safe jurisdiction with a well-defined regulatory process and a very low corporate tax structure. Economics also plays a large role and we have demonstrated that our KSM project will have tremendous capital efficiency, with total costs of approximately \$600 per oz at today's metal prices."

- Rudi Fronk, Co-Founder, Chairman and CEO, Seabridge Gold Inc.

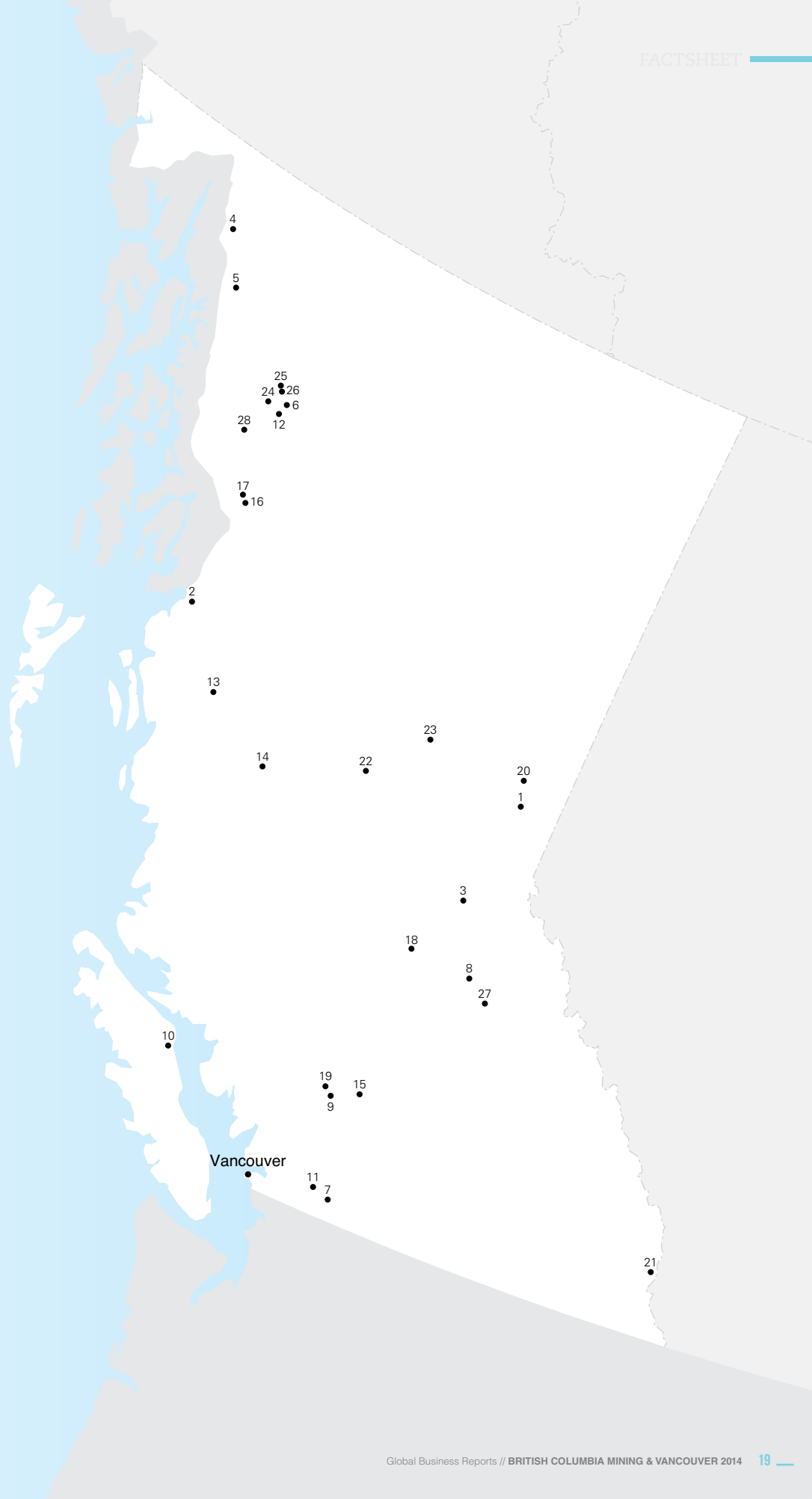
18	Taseko Mines Ltd	Gibraltar	producing	copper-molybdenum
19	Teck Resources Ltd	Highland Valley	producing	copper
20	Teck Resources Ltd	Quintette	development	coal
21	Teck Resources Ltd	Elkview	producing	coal
22	Thompson Creek Metals Company Inc.	Endako	producing	molybdenum
23	Thompson Creek Metals Company Inc.	Mt. Milligan	producing	copper-gold
24	West Cirque Resources Ltd	Castle	development	copper-gold

"West Cirque will be one of the survivors of this challenging market. We benefit in having a corporate agenda, as a project generator, which has buffered us from the current downturn in the market. However, the difficulties in this current market climate, will create many opportunities for us. West Cirque has a team that does great work and when you have a partner like Freeport saying we want to work with you, that serves as a stamp of approval; this has opened doors for us and we plan to continue to maintain this momentum. In two to three years, West Cirque will have matured this business model and attracted other partners to a growing portfolio of projects."

- Steve Vanry, Chairman, West Cirque Resources Ltd

25	West Cirque Resources Ltd	Tanzilla	development	copper-gold
26	West Cirque Resources Ltd	Pliny	development	copper-gold
27	Yellowhead Mining Inc.	Harper Creek	development	copper-gold-silver
28	Copper Fox Metals Inc.	Schaft Creek	development	copper-gold-molybdenum-silver

This map includes those projects and companies mentioned in this editorial. It does not represent a complete list of exploration and production projects in British Columbia and is intended for reference purposes only.



INTERVIEW WITH

Frank D. Wheatley & Ronald L. Handford

FDW: CEO

RH: EXECUTIVE VICE PRESIDENT—CORPORATE DEVELOPMENT
YELLOWHEAD MINING INC.

Yellowhead Mining Inc. is a Canadian mining company formed in 2005 and now has a 100% interest in the Harper Creek copper-gold-silver project. Could you provide a brief introduction to your company and its history?

RH: Yellowhead Mining was founded in 2005 with the specific purpose of advancing the Harper Creek project. Our chairman, Greg Hawkins and geologist Chris Naas assembled the claims which now comprise the property, with the final piece coming as the result of a deal with the United States Steel Corporation (U.S. Steel). From 2005 to 2010 Yellowhead Mining privately raised \$14 million in three separate rounds, while assimilating data from past exploration activities and conducting its own exploration activities. These results and the initial scoping study led the company to settle on a mill capacity of 70,000 mt/y. In 2010 the company raised a further \$8 million and went public on the TSX Venture Exchange using a CPC shell. These funds allowed Yellowhead Mining to complete a preliminary economic assessment (PEA) in the spring of 2011. With the PEA results, Yellowhead Mining was able to secure \$25 million in a bought deal financing. From the historical data and drilling by the company, by February 2012 Yellowhead Mining built Harper Creek's Measured and Indicated Resources to 815 million mt grading 0.29% copper, utilizing a cut-off grade of 0.2% copper. The Company concluded a feasibility study in March 2012 demonstrating robust economics for the project and a 28-year mine life. Currently, the company is working on the environmental assessment and is in the process of searching for strategic partners to help with project financing and development.

In May Yellowhead Mining announced the results of the final six infill drill holes from its winter program at Harper Creek. How do

these results play into the advancement of the mine and which other steps are Yellowhead Mining looking to complete in the near term?

RH: While impressive, the results of the infill drilling program were expected, as the program was carried out to tighten drill spacing in areas where there were large gaps. Historically, Noranda Inc. and U.S. Steel had drill spacing of about 100m on section, which Yellowhead Mining has been tightening to a range of to 60 m to 30 m.

FDW: Yellowhead Mining is currently in the process of revisiting the comments on our environmental assessment and is looking to sit down with the relevant ministries this fall, to review the company's response. The goal is have this review process completed by the second quarter of next year, in order to continue the environmental assessment.

Yellowhead Mining has sought to eventually operate the Harper Creek mine, an unusual option for many juniors given the state of the mining industry and the scarcity of financing. Why has Yellowhead sought to take Harper Creek to production?

FDW: Ultimately, Yellowhead Mining is looking for a strategic partner to provide project financing. One of the advantages of the Harper Creek project is the clean copper concentrate it will produce over a mine life of 28 years. This product, coupled with the longevity of the mine, ensures that there will be a very strong demand from Asia and by extension Asian investment.

RH: Many of our potential strategic partners from Asia are not looking to operate the Harper Creek project and they would expect to solely provide the financial and off-take support, as required.

The development of the Harper Creek project has included the strong participation of local First Nations. In practice, how has the memorandum of understanding operated with the Simpcw First Nation?

RH: Yellowhead Mining's consultation with the Simpcw First Nation began even before the start of exploration in 2006. During each stage of the environmental assessment process individuals from the Simpcw and Adams Lake Indian Band have worked on site, completing archeological, environmental and traditional use studies. At the management level our advisory board includes Keith Matthew, the former chief of the Simpcw First Nation, who has been with the company since 2011. •

INTERVIEW WITH

David Blann



PRESIDENT AND CEO
HAPPY CREEK MINERALS LTD

Could you please provide an introduction to Happy Creek's Fox property?

The Fox property was originally staked by a prospector who I worked with for many years. He introduced me to the area in 1998 and after some time working together we found some high-grade molybdenum in a quartz boulder and signs of positive tungsten. After acquisition by Happy Creek in 2005 we completed a lot of ultraviolet light lamping, which found a significantly larger area containing some very high tungsten grades in surface samples and subsequently, trenches. Then in 2011 Happy Creek executed a successful campaign to drill test some of the high grade trenches, making the Fox a bonafide high-grade tungsten discovery. 2012 saw another drilling campaign that expanded on the 2011 results, and this year we have done a little more, though it is limited in scope due to funding. The Fox property has proven to be near-surface, high grade and close to infrastructure. With hole F12-27 containing 4.1 metres of 1.78% tungsten trioxide, 14.8 metres of 4.0% tungsten trioxide and 5.8 metres of 2.01% tungsten trioxide, the Fox is returning arguably some of the best tungsten drill results in a new discovery in the Western world.

In February of this year Happy Creek announced the result of its metallurgy and mineralogy evaluations at the company's Rateria Property. Could you provide our readers with an update on this property?


The Rateria property is 6.5 km from a producing copper mine, Teck Resources' Highland Valley. The metallurgy was completed to confirm the resources compatibility with standard floatation processes. It has met all of those requirements in an outstanding manner, with almost 40% copper in the concentrate and close to 400 g/mt silver. What Happy Creek found was a similar grade to what is being mined at Highland Valley and we have developed one, maybe two, zones from which a resource estimate could be made and are looking to complete more drilling before the results are published. It is close to surface, goes down to at least 400 meters and is open to an extent. Drill results include 95.0 meters of 0.67% copper in Zone 1, and 152.5 metres of 0.35% copper, 0.57 g/t rhenium in Zone 2. This includes 32.5 metres of 0.91% copper, 0.01% molybdenum, 4.0 g/t silver, 0.11 g/t gold and 1.83 g/t rhenium. The rhenium values in Zone 2 are actually very high on a global scale and could be a significant credit.

Sampling in May at your Silver Dollar project returned up to 50.3 g/mt gold and 4,496 g/t silver. Where does this project stand?

Due largely to market conditions, Happy Creek has not performed any work on the project since the news release, which was based on work from last year. Since acquiring the original claim Happy Creek has expanded its claim position, conducted an airborne survey and has sent prospectors to sample. The numbers have been tremendous and it is part of a 40 km mineral trend, which hosts a variety of past producing high grade mines. The company will look to complete some more geological and mapping work at the project on its 10 km share of the trend. Happy Creek believes that it would be a great project on which to bring a partner with a gold-silver focus.

**HAPPY CREEK
MINERALS LTD.**

Copper Molybdenum Tungsten Gold Silver



TSX-V:HPY
DIVERSIFIED METALS EXPLORATION

The Fox Tungsten Project

A new high grade tungsten discovery in B.C., Canada

Top tier tungsten grade in an open pit setting

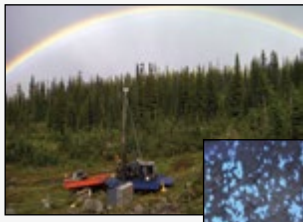

10 km x 3 km mineral system

Nearby infrastructure

14.8 metres of 4.0% W03

19.4 metres of 0.82% W03

"The Fox tungsten results are truly remarkable for a brand new, near surface discovery" - David Blann, P.Eng., President, CEO

HOLE	FROM (m)	INTERVAL (m)	W03 %
F11-02	5.7	5.2	0.91
F11-07	14.30	4.70	1.02
F11-08	8.25	12.40	0.74
F11-09	22.05	7.30	0.33
F12-01	14.00	19.40	0.82
F12-09	15.00	11.00	0.80
F12-11	27.00	14.00	0.66
F12-13	19.00	3.40	0.64
F12-17	20.00	20.00	0.63
F12-18	18.00	24.70	0.68
F12-19	35.00	5.00	0.32
F12-20	24.00	9.00	0.42
F12-26	3.05	2.95	1.93
F12-27	1.90	4.10	1.78
F12-27	83.20	14.80	4.04
F12-27	136.00	24.00	0.79
F12-28	82.00	4.00	0.87
F13-03	20.0	22.0	0.76
F13-07	12.0	22.0	0.36

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Development and Production

British Columbia on the horizon



Courtesy of Copper Mountain Mining

Even with a slight slowdown in Chinese growth, Asia still remains the world's foremost market for mineral commodities. With its Pacific Ocean coastline and developed port infrastructure, British Columbia is perfectly poised to capitalize on this continuing Asian demand. To sell to Asian markets, however, British Columbia must have something to sell. With this in mind, the provincial government is taking steps to ramp up production.

Through the BC Jobs Plan, the Liberals aim to open eight new mines and expand nine existing mines in British Columbia by 2015. The initiative will create \$1.6 billion in additional revenue and more than 10,000 jobs by 2020. "Commodity prices are off peak at present but there is always going to be a global demand for resources and British Columbia is a prime market for that. Despite the current fiscal climate, there is still exploration going on and there are still mines that are opening and expanding," said Heather MacDonald, Canadian environmental mining lead at full spectrum EPCM firm, CH2M HILL.

Considering the opening of Copper Mountain in 2011 was the first major metal mine to open in British Columbia since 1998, this is a very positive sign. Two mines have already been brought into production under this government initiative: New Gold's New Afton mine, with an annual production of 85,000 oz gold, 75,000 lb copper and 214,000 oz silver, and Thompson Creek Metals' Mt. Milligan copper-gold mine. Five others are under construction or going through the permitting phase: Imperial Metal's copper-gold Red Chris mine; Anglo American's Roman mine; Teck Resources' Quintette coal mine; Barkerville Gold Mine's Bonanza Ledge mine; and Huldra Silver's already producing Treasure Mountain mine.

The plan also includes major expansions at six operating mines: Teck Resources' Highland Valley Copper and Elkview coal mines; Imperial Metals' copper-molybdenum Huckleberry mine; Hillsborough Resource's underground coal operation at its Quinsam mine; Thompson Creek's surface molybdenum Endako mine and Taseko Mines' copper-molybdenum Gibraltar mine. These projects underscore that there is a bright future ahead for mining in British Columbia. Outside of the BC Jobs Plan framework, companies are looking to complete expansion exploration programs, bringing their mines into production over the next five years, while others are looking to upgrade already successfully producing mines.

West Cirque Resources, a project generator focused on copper-gold porphyry deposits, has come together with Freeport-McMoRan Copper and Gold to advance three of its projects: Castle, Tanzilla and Pliny; clustered in the Northern Stikine Terrane. "This year, together with Freeport we had another successful drilling round at Castle and future plans for this project will be dependent on our joint technical committee and management staff meeting later this year. Tanzilla has not yet been drill tested but we are keen on this project given the giant lithocap, extensive copper mineralization and buried porphyry that is there and that it has never been drilled before," said Steve Vanry, chairman. At Tanzilla the company has completed much of its pre-drilling groundwork and has developed drill targets for 2014. West Cirque's other two projects in the Quesnel Trough, Heath and Aspen Grove also hold exciting potential: "[At Heath] we have a great database of geophysics and geochemical results to work with and exploring this area is a matter of developing drill targets," said Vanry.

→ 25

Infrastructure Development

INTERVIEW WITH

Gareth Clarke & Mike Brandson

GC: SECTOR MANAGER-INDUSTRIAL MARKETING
MB: SENIOR KEY ACCOUNT MANAGER-MINING SECTOR
BC HYDRO POWER SMART

British Columbia has historically lagged behind the rest of Canada in terms of infrastructure development. This is all about to change, as the provincial government and BC Hydro are looking to bring the Northwest Transmission Line – forecast to unlock billions in future revenue – into service by the spring of 2014.

The Northwest Transmission Line is a 344 km, 229.6 kW project that will stretch from the Skeena Substation, near Terrace, to a new installation at Bob Quinn Lake. It has the possibility of unlocking 40 potential projects and providing power to remote First Nations towns.

Ron Thiessen, of Hunter Dickinson sees the economic benefit of the Northwest Transmission Line and the hydroelectric power it carries: “Hydroelectric power is one of the most efficient, low cost energy sources; British Columbia has this in abundance while most other mining jurisdictions have to rely on some form of carbon power generation.”

Bringing mines online is not the only focus of infrastructure development in the province. Asia, which has become the primary focus for British Columbia’s mineral exporters, must still receive the province’s geological wealth via the sea. To increase these export capabilities, large expansion projects have been initiated along the coast, with a particular focus on coal. Westshore Terminals completed a \$100 million expansion at its Roberts Bank facility, increasing its capacity to ship 33 million mt/y of coal, up from 23.5 million. Moving forward, there are two expansion plans to round out the development of British Columbia’s coal exporting ports. Ridley Terminals is in the process of incrementally doubling the capacity of its Prince Rupert port to 24 million mt/y, costing \$200 million, by sometime next year. Unlike the changes made by Westshore and Ridley, the expansion project at Neptune Terminal has allocated \$65 million out of the \$400 million for improving their North Vancouver terminal’s metallurgical coal capacity. This will expand the current 8.5 million mt/y to 18.5 million by 2015.

BC Hydro has sought to establish an incentive-based approach to its industrial clients, particularly through the Power Smart program. What is the relationship between the Power Smart department and the mining industry?

GC: In 2008 BC Hydro re-introduced incentives for energy saving projects to the industrial market through our Power Smart programs. Our comprehensive offering to the mining industry includes collaboration at the design and building phases of the mine, operation and even reclamation. BC Hydro funds studies for our customers to find cost-saving opportunities. Based on the findings of these studies, BC Hydro offers incentive funding to reduce the capital project costs of implementing energy saving projects. BC Hydro also offers a Strategic Energy Management Program. This initiative has gained tremendous traction and many BC mining companies have dedicated energy managers who are co-funded by BC Hydro Power Smart. With regards to new mine operations, BC Hydro has identified technologies which could theoretically reduce a mine’s electricity consumption by 50%. It is critical for mining

companies to assess these opportunities early, since they would only be cost-effective at the design and build phase.

MB: Copper Mountain Mining Corporation is one company that chose to adopt an offering under the Power Smart program. The key to this project, and new construction programs overall, is to start early with the proponents and help them understand the conscious use of hydro energy and its related financial benefits. Effectively, BC Hydro strategically works with mining clients to help change the corporate culture around energy use. A base line study is completed to help the customer quantify their energy use and which energy efficient initiatives can be adopted from the Power Smart framework. The Northwest Transmission Line will also benefit a variety of new BC Hydro customers. There is a major Independent power producer large mining customers and the communities like Iskut, all of whom benefit from the clean energy this project will deliver. The province will benefit from a transmission line that will open the northwest of the province to economic development. •



I like Premier Clark’s proposals and, although politics can sometimes be hard to navigate, now that she is leading a majority government it should be possible for her to implement her programs for jobs and development of the north. Resource development along with good environmental stewardship can create significant economic benefit for British Columbia.



- Elmer B. Stewart, President and CEO,
Copper Fox Metals Inc.



INTERVIEW WITH

Jim O'Rourke

CEO
COPPER MOUNTAIN MINING CORP.

In the summer of 2011, Copper Mountain Mining Corporation labeled itself Canada's newest major copper producer. Could you provide our readers with a brief overview of your company?

The company was established at the end of 2006 and completed exploration drilling in 2007, which was very successful and allowed us to quickly start a preliminary evaluation. Given the results of this evaluation, the company, in early 2008, completed a final feasibility study, which confirmed a 5 billion lbs copper resource and economic viability of the project. Following the feasibility study, Copper Mountain formed a relationship with a strategic investor and partner, Mitsubishi Materials Corporation and concluded an agreement in 2009, which led to the construction of the mine. Construction of the Copper Mountain Mine cost \$438 million and was completed on schedule and on budget in mid 2011. The ramp up to full production has proven to be more difficult than anticipated, given issues with purchased equipment. That being said, near design capacity was reached in the latter part of 2012 for a short period while treating softer than average ore. Since this time, we have continued to improve operations, but we have not been able to consistently operate at the design capacity level of 35,000tpd. Three short term initiatives have been implemented to increase production and ensure a consistent mill feed; increased powder factor to improve ore fragmentation in the pit, 5000 tpd contract pre-crushing located near the primary gyratory crusher and the purchase of a new 8,000 tpd portable crusher located near the coarse ore stockpile crushing additional ore to minus 2 inch. The combination of these 3 improvements have provided a 20 percent increase in mill throughput. A permanent SAG pre-crusher

has been evaluated and is being planned for installation to ensure a production capacity above the 35,000tpd designed capacity, and we hope to finish this upgrading mid 2014.

Before we move into a discussion of your flagship property I would like to discuss Copper Mountain's corporate strategy. Could you talk to your company's high growth, low risk strategy?

Our strategy is to form a strong base by having the Copper Mountain mine produce at or above design capacity. Then the company will look towards other opportunities on site and off site, including mergers and acquisitions, as long as it is accretive to our shareholders. With regards to the Copper Mountain mine, we have an 18,000 acre property and we are only mining a small portion of our claim block. There is excellent exploration potential at our site and our exploration programs have produced some impressive results. The drilling has confirmed that the mineralization does extend below the existing pits, none of which is included in our current 17-year mine plan.

Your flagship property, Copper Mountain Mine, is set to produce between 65 million to 70 million lbs copper, 29,000 oz gold and 265,000 oz silver this year. Given the difficulties with the mill this year are you on track to meet this guidance and alleviate the issues with the mill?

The company will be on track to meet the 2013 copper production guidance. The primary crusher setting is 14 cm and with this size feed to the SAG mill, we have found that the balls in the SAG mill do not have the impact required to crush this harder ore. In the short term we have implemented three initiatives to provide finer sized ore to the SAG mill, these are; increased powder fac-

tor when blasting ore to improve fragmentation, utilizing a contractor to pre-crush about 5,000tpd of ore to the 5cm size and recently, we installed a new portable crusher with a target of pre-crushing 8,000 tpd ore to the 5cm size. With these initiatives the mill is operating at about 32,000 tpd, which is just under our 35,000 tpd design capacity. In the long term, we plan to add a permanent secondary crusher, which will pre-crush all of the feed prior to the SAG mill to minus 5 cm. With the studies and test runs completed to date tonnages as high as 40,000 tpd have been achieved with pre-crushing the ore.

Bringing the focus back to exploration, Copper Mountain is also looking towards increasing exploration activity on site. Could you talk about plans to expand and upgrade Pit 2?

In 2012, the company completed a fair amount of drilling around Pit 2 to convert inferred resources to measured and indicated. This was a very successful campaign and we extended the resource. Copper Mountain also carried out extensive drilling underneath Pit 2 and the results were favorable and confirmed the extension of mineralization. One of the holes highlighted 123 m of 1.0% copper 0.75% Cu Eq and another was 141m of 0.59% copper, at depths in excess of 150m below the bottom of the Super Pit in the Pit 2 area, among others. In Pit 3, towards the southern end of the Pit, an intersection reported 94m m grading 0.72% Cu and an intersection of 102m grading 0.7%Cu immediately below the bottom of the Super Pit in addition to other results, confirming that mineralization continues at depth in this area as well. These results highlighted extensive potential underneath the producing mine. •

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22 <

Moving forward, West Cirque looks to cement another partnership to begin aggressively exploring the area. “West Cirque will be one of the survivors of this challenging market. We benefit by having a corporate agenda, as a project generator, which has buffered us from the current downturn in the market.”

Seabridge Gold’s Kerr-Sulphurets-Mitchell (KSM) project is estimated to have a production cost of \$600/oz of gold thanks to a number of factors pointed out by Rudi Fronk, co-founder, chairman and CEO: “The first of which is the scale of our KSM project, which at this point is well over 1.8 billion mt of proven and probable reserves with a mine life of over 50 years.”

High recoveries of both gold and copper, in relation to other porphyry deposits worldwide, and the project’s proximity to the Northwest Transmission Line also help to ensure this low production cost. In the company’s search for higher grade zones this year at the Deep Kerr target—in view of increasing the profitability of the project—26 of the 29 holes drilled were highly success-

ful. Fronk highlighted the results: “Assays have been received to date for 15 of these 26 holes; all 15 have intersected wide intervals grading at or above 0.5% copper and 13 have major intercepts, averaging above 0.6% copper, which is about three times the grade of our existing reserves.”

Moving forward into 2014 there is great upside potential at KSM, and Seabridge Gold believes that there is room to add up to 1 billion mt of high-grade resource.

Also searching for a strategic partner to help with project financing and development is Yellowhead Mining. 2012 saw the company grow the measured and indicated resources at their Harper Creek copper project, northeast of Kamloops, to 815 million mt with a grading of 0.29%. In March of that year, Yellowhead Mining showcased the robust economics and 28 year mine life in its feasibility study. In this aforementioned search for a strategic partner, Yellowhead Mining has turned westward, highlighting an ongoing trend with companies in the development stage; a caffeinated search for Asian investment. “One of the advantages of the Harper

Creek project is the clean copper concentrate it will produce...this product, coupled with the longevity of the mine, ensures that there will be a very strong demand from Asia and by extension Asian investment,” said Frank D. Wheatley, CEO.

Avanti Mining has looked to a five bank syndicate and a life-of-mine sales agreement to fund its Kitsault molybdenum project—with measured and indicated resources of 321.8 million mt at an average grade of 0.071% molybdenum, containing 505.5 million lb molybdenum and 4.8 g/mt containing 49.5 million oz silver — that will produce 40,000 mt/d for 15 years. The agreement with German multinational ThyssenKrupp covers 50% of Kitsault’s total production. “Due to the fact that molybdenum is a strategic raw material for Germany it qualifies under their raw material import policies for an untied loan guarantee program,” said AJ Ali, the company’s CFO.

This allows the two German banks, KfW-IPEX Bank and UniCredit to have most of their proposed loan amounts to Avanti Mining guaranteed by their own govern-

ment due to the off-take agreement. Export Development Canada, a crown corporation with a mandate to develop international trade, and Caterpillar Financial Services have also sought to help with financing on the project. Rounding off this five bank syndicate is the Korean Development Bank, with which Avanti Mining is looking for a similar arrangement as its two German financial partners.

Other companies have sought more traditional methods of furthering their projects during this time of uncertainty. Canarc Resource is already thinking into the future, the company is currently looking to bring in a partner to develop its 1.1 million oz, high grade, underground New Polaris gold mine project, located in northwestern British Columbia in view of going after a second asset either in Canada or the US. Bradford Cooke, chairman and CEO said: "We are searching for a partner who has the horsepower needed to finance, build and operate the New Polaris mine, one of the highest-grade gold resources ready for development in western Canada."

Also considering bringing on a major partner is Chieftain Metals, with its Tulsequah Chief polymetallic project in northwest British Columbia. The project's unusually high precious metal content is found within a VMS deposit, which according to the company's president and CEO Victor Wypyrsky, provides a strong sign that the project's 6.5 million mt may lead to "an ultimate resource development of between three to six times the starting resource/reserve." Having completed a full feasibility in January of this year the company is currently engaged in project financing discussions. Construction, reliant on gaining the appropriate financing, is targeted for the spring of 2014.

Rounding out this overview of companies to watch over the next few years is Copper Mountain Mining. Led by recent inductee to the Canadian Mining Hall of Fame, Jim O'Rourke, the company looks to improve the efficiency of its Copper Mountain mine, south of Princeton. In the short term, the company has implemented three initiatives to provide finer sized ore to the SAG mill, including: increasing the powder factor when blasting ore to improve fragmentation; the utilization of a contractor to pre-crush around 5,000 mt/d ore to 5 cm and the recent installation of a new portable

crusher with a target of pre-crushing 8,000 mt/d ore to 5 cm. These initiatives have allowed the mill to operate at 32,000 mt/d. In the longer term Copper Mountain Mining plans to add a permanent secondary crusher to pre-crush all of the feed prior to the SAG mill to minus 5 cm. According to O'Rourke: "Studies and test runs completed to date [provided] tonnages as high as 40,000 mt/d by pre-crushing the ore."

Exploration has also been completed on site

and shows increased upside for the Copper Mountain mine. This has focused on both Pit 2 and Pit 3, confirming the extension of mineralization. One of these drill holes at Pit 2 highlighted 123 m of 1.0% copper, 0.75% of copper equivalent while another came back with 141m of 0.59% copper. At Pit 3 the company reported 94 m with a grading of 0.72% copper and an intersection of 102 m with a grading 0.7% immediately below the bottom of the company's Super Pit. •

Our work levels have remained constant and I take that as a good sign that the industry will see increased activity. Admittedly, it is difficult work these days; particularly with deals having shorter timeframes. With risks having increased, companies have focused on immediate results to drive momentum. Much of this work is extremely forward looking, taking into consideration a variety of legal and fiscal issues in order to raise capital. It certainly is a challenging time across the industry, no matter which stage or size of mining company you service.



- Alan J. Hutchison, Partner,
Dentons Canada LLP

Canadian Mineral Production by Province and Territory

Source: Mining Association of Canada

PROVINCE	(\$ millions)	2002 %	RANK	(\$ millions)	2012 %	RANK
Ontario	5,937.3	29.7	1	9,162.8	19.5	1
British Columbia	2,863.6	14.3	3	8,312.3	17.7	2
Saskatchewan	2,493.0	12.5	4	8,247.5	17.6	3
Quebec	3,742.0	18.7	2	8,187.1	17.5	4
Newfoundland and Labrador	872.8	4.4	7	4,449.4	9.5	5
Alberta	1,094.4	5.5	5	2,706.1	5.8	6
Northwest Territories	874.2	4.4	6	1,721.8	3.7	7
Manitoba	850.5	4.3	8	1,512.4	3.2	8
New Brunswick	653.5	3.3	9	1,146.4	2.4	9
Nunavut	271.6	1.4	10	604.7	1.3	10
Yukon	43.1	0.2	12	509.6	1.1	11
Nova Scotia	258.6	1.3	11	313.2	0.7	12
Prince Edward Island	5.3	-	13	4.1	-	13

Fraser Institute Ranking

Source: Fraser Institute Annual Survey of Mining Companies

PROVINCE	RANK	SCORE
2012/2013	63.6	31/96
2011/2012	62.5	31/93
2010/2011	54.4	36/79
2009/2010	48.7	38/72
2008/2009	61.2	24/71



INTERVIEW WITH

Rudi Fronk

CO-FOUNDER, CHAIRMAN AND CEO
SEABRIDGE GOLD INC.

The KSM project is one of Seabridge Gold's two flagship properties. Which factors are responsible for the impressive estimates of a production cost of \$600/oz?

There are a number of factors which are responsible for these impressive economics. The first of which is the scale of our KSM project, which at this point is 1 over 2.0 billion mt of proven and probable reserves with a mine life of over 50 years. The total \$600/oz cost estimate includes upfront capital of over \$5 billion, sustaining capital, operating and closure costs. The KSM project also has very good metallurgy; high recovers of both gold and copper in relation to other porphyry deposits worldwide. Lastly, given its close proximity to the Northwest Transmission Line, the project will be able to utilize very cheap electrical power.

Seabridge recently began a drilling program at KSM to test four new target discoveries from 2012. What is your company looking to discover with this program?

The company believes, based on the database we have constructed and through information sharing with our neighbor, Pretium Resources Inc., that we could be able to find high-grade potassic core zones underneath our four existing porphyry deposits. Finding higher-grade zones that could be extracted earlier in the mine sequencing process would have a direct benefit on the profitability of this project. Thus, Seabridge is following up with a drilling project this year to confirm Deep Kerr as our first core zone discovery and to quantify an initial resource estimate at Deep Kerr that could be highly accretive to the project's already robust economics.

25 holes drill holes were completed at Deep Kerr this summer. Of the 25 holes completed, 23 encountered significant gold and copper grades over extensive widths. The weighted average of the drill intercepts from the Deep Kerr zone yields a grade of 0.46 g/T gold and 0.71% copper over a width of 220 meters. These results represent a substantial increase in copper grades over previous drilling at KSM and are expected to generate a resource which significantly exceeds the average grade at KSM. Preliminary evaluation of Deep Kerr indicates that the strike potential of the core zone is at least 1,600 meters long, between 200 and 300 meters wide and at least 700 meters vertically; however Deep Kerr remains open along strike and vertically. Within Deep Kerr, there is room to add up to one billion tonnes of high-grade copper-gold resources. An initial resource estimate for Deep Kerr is expected in early 2014.

Seabridge owns stock in several exploration companies from optioning no-core properties. Could you discuss the benefits of this strategy?

In 2008 it became clear that, out of the assets we acquired in the company's early years, two, KSM and Courageous Lake, would drive the value of the company moving forward. As a way to unlock value and to minimize equity dilution we decided to sell, joint venture or option out some of our non-core assets. At this point we have recognized sales from non-core assets totaling around \$50 million mostly in cash and we could see another \$50 million over the next few years as our partners move these assets into production. •



SEABRIDGE GOLD
KSM PROJECT

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AJ ALI

INTERVIEW WITH

Mark Premo & AJ Ali

 MP: PRESIDENT AND CEO

AJ: CFO

AVANTI MINING INC.

Avanti Mining Inc. is an exploration and development company headquartered in Vancouver with its primary project located in the north of British Columbia. Could you provide a brief introduction to your company?

AJ: Avanti Mining was founded by our chairman, Craig Nelson and I, with the intention of acquiring the Kitsault molybdenum project. We became aware of this project in 2007 at which time it was owned by Alcoa Inc. Avanti Mining approached Alcoa, which was in the process of finishing reclamation on the site and in October 2008 the company acquired Kitsault.

At the end of last month Avanti announced that it is now in the 30-day public comment period of its Comprehensive Study Report for Kitsault. Please provide our readers with an update to the Kitsault Molybdenum Project.

MP: Kitsault is a brownfield project, a restart of a mine that had operated in two different periods. Avanti Mining approached the project by studying the reserves to ascertain the most advantageous mine plan and throughput volumes. From these studies it was decided that 40,000 mt/d was an appropriate figure, which yielded a mine life of around 15 years. Currently, Avanti Mining is on the second version of its feasibility study, an update that was completed in early 2013. Given the decrease in the price of molybdenum Avanti Mining is also currently completing an enterprise optimization study, in order to increase net present value.

AJ: Concurrently, Avanti Mining has been completing the environmental application processes at the federal and provincial levels. Given the historical permit on the mine, the full environmental review process was not required. Instead, Avanti Mining voluntarily opted to complete the environmental review and in turn, thoroughly consulted the First Nations in the area.

On August 2 Avanti Mining responded that it

will oppose a judicial review application filed by the Nisga'a Nation for Kitsault's environmental assessment certificate. What are underlying issues and how are you looking to alleviate this impasse?

MP: Avanti Mining understands that the Nisga'a Nation's issue is with the province of British Columbia and surrounds the definition of consultation and how it is enacted relative to the Nisga'a Final Agreement.

AJ: To clarify, the Nisga'a Nation is not opposed to the mine but rather to the interpretation of their treaty rights vis-à-vis the provincial government. This is the first major development since they signed their treaty approximately 13 years ago, hence it sets a precedent regarding consultation with the Nisga'a.

Avanti Mining has presented a robust sustainability and training partnership with the First Nations involved. What are these initiatives around the Kitsault mine?

MP: Avanti Mining has a strong relationship with the British Columbia Aboriginal Mine Training Association (BCAMTA), in collaboration with the economic consuls in Nisga'a villages and the Northwest Community College. The company is currently looking at the skill sets required for the Kitsault mine and BCAMTA will tailor training to these jobs.

Moving on to the financing of the Kitsault project, could you talk to Avanti Mining's offtake agreement with ThyssenKrupp?

AJ: Avanti Mining has been talking with ThyssenKrupp Group for over two year and the company has concluded a life-of-mine sales agreement for 50% of Kitsault's total production. Due to the fact that molybdenum is a strategic raw material for the Republic of Germany it qualifies under their raw material import policies for untied loan guarantee program. The two German banks that are part of

our five bank syndicate, KfW-IPEX Bank GmbH and UniCredit Bank AG, have most of their proposed loan amounts to Avanti, guaranteed by their own government, based upon the off take agreement with ThyssenKrupp.

The Korean Development Bank is also part of this syndicate and highlights the importance of Asian demand for molybdenum. How has this relationship played out and has Asian demand factored into your corporate strategy?

AJ: Avanti Mining is currently in discussions with a Korean steel mill to duplicate an agreement similar to the one with ThyssenKrupp. There is a similar framework to the arrangement with the German authorities in which the Korean institution will provide insurance to the Korean bank. Export Development Canada (EDC), a crown corporation, is another member of the aforementioned syndicate and it is joined by Caterpillar Financial Services, which has committed to project financing if Avanti Mining is to buy Caterpillar equipment. Our target, through this syndicate, is to fulfill up to 70% of the project's financial needs, with the other 30% coming from equity.

As a final word to our readers, when Global Business Reports returns in two to three years' time what will be the topic of conversation with Avanti Mining Inc.?

MP: It is Avanti Mining's goal to be in commercial operation and the company will be looking towards a robust future with engaged employees and safe operations at the Kitsault mine.

AJ: One other factor which is not as well known is that Kitsault is one of the three deposits on this property. Avanti Mining has not had the time nor the money to continue exploring and as molybdenum occurs across a wide area there are a lot of opportunities on this property to find additional deposits of molybdenum in the vicinity of the Kitsault mine. •

Building more than just a mine

The Kitsault mine, which is slated to go into construction in 2014, is one of the world's top five molybdenum development assets. Located in northeast BC, it is a high-grade resource with existing infrastructure and ocean and road access.

And despite its potential as a world-class mine, what we're most proud of is our ongoing commitment to working with the local communities. That means we're providing training for local Aboriginal and non-Aboriginal residents, contracting opportunities for local businesses, and making sure our environment is protected and preserved.

We're not just building a mine—we're building capacity and opportunities for northern BC for generations to come.



avantimining.com



Avanti Kitsault Mine Ltd.

Integrating Engineering & Environmental Concepts for Mine Development

By Greg Smyth, Senior Project Manager, Knight Piésold Ltd

Designers of modern-day mines must consider and incorporate nearly endless aspects of a project so that it is technically, economically, environmentally and socially balanced. Technical and economic feasibility continue to be the key drivers behind development decisions. However, environmental and social considerations are growing in their influence on both the design and ultimately the decision to move a project past concept and into construction and operation.

Environmental assessment of mining projects within Canada and beyond has grown in complexity in a short timeframe. Within the past few decades, data requirements to support mining environmental assessments has increased in duration, as well as the breadth of data that must be collected. Today, it is not uncommon for multiple years of comprehensive baseline studies to be mandatory across all environmental disciplines. And all this data must be collected prior to conducting an impact assessment of the proposed project on the baseline conditions at a given site. Many clients of Knight Piésold have been working to streamline development schedules by simultaneously collecting multiple years of data to support the environmental assessment application, as well as advance the design aspect of the project from scoping through to feasibility. The challenge faced by mine designers is to infuse enough social and scientific information at the scoping level design phase such that the extensive (and expensive) baseline studies are primarily focused on the eventual project that will be taken to feasibility level design. Mine developers are therefore having to take greater risks in allocating funds prior to making a formal development decision, so that projects are not stalled following a feasibility study, waiting for the baseline studies and impact assessment process to be completed.

Accomplishing a balanced review of a project requires input from geologists, engineers (elec-

trical, mechanical, civil, geological, mining, geotechnical, etc...) and scientists (biological, social, etc...), among other specialists, to iterate the design of a mining project such that it will have the least negative effects (social and environmental) with the maximum positive effects (social, environmental and economic). This approach has required professional staff to step back from their primary area of study and consider many other disciplines that they would normally not think about when either designing a mine or assessing effects for their particular focus. A type of translation service has evolved from this level of integration, as engineers, scientists and geologists do not often speak the same technical language. Engineers focus on the practicality of a design, geologists focus on maximizing the extraction of the mineralized ore body, while scientists are evaluating effects for their particular area of interest and suggesting changes to the design to minimize such effects. Ideally, the objectives of each group come together in a balanced manner and the project can be developed such that it meets each of the technical, economic, environmental and social criteria.

An increasing phenomenon is that projects of tomorrow must go through many more iterations compared to projects of the recent past, in order to find that balance. Project teams that have a stronger environmental and social science influence sometimes develop ideas that surpass technical or economic practicality. Contrarily, teams that have primarily focused on the classical engineering aspects may not consider all environmental design modifications that could reasonably be included to achieve a better overall project. Developing a project team with the right balance of diverse expertise at the conceptual and baseline design phase will assist in achieving an optimized project with the least iterations.

Mine development companies have a challenging position where they must maintain an eco-

nomical design to ensure that investors remain interested in providing hundreds of millions, if not billions of dollars, while at the same time meeting the provincial/territorial and federal regulatory requirements, and simultaneously ensuring that they work proactively to obtain a social license to construct and operate for multiple decades. Finding this balance is not an easy task and requires strong leadership from all parties involved. Mine development and environmental assessment reviewers (regulatory, First Nation, community or other third parties) are often from as diverse backgrounds as those developing the mine designs and conducting the environmental assessments. Effectively communicating the details of the project, whether it be the technical details around the design, the scientific aspects of the baseline studies, or the conclusions of the environmental assessment, have become a key objective of the mine development team. As such, an integrated team of engineers, scientists and geologists that can work together to design and communicate the proposed project is the best approach at succeeding in developing new mine operations. *

***Knight Piésold** 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 worldwide, including in Canada's remote north.*

***Greg Smyth** has 17 years of environmental and engineering experience, allowing him to bring value to mining projects from their inception through to closure. He is a Senior Project Manager in the Vancouver office of Knight Piésold, where he oversees Feasibility Studies and Environmental Assessments related to mine waste management for mining projects. His areas of expertise include: environmental baseline studies, impact assessment, mine waste design, First Nation and public consultation, mine permitting, reclamation design and research, and communication with agencies at all levels of government.*

INTERVIEW WITH

Steve Vanry



CHAIRMAN
WEST CIRQUE RESOURCES LTD

Freeport-McMoRan is providing C\$1.5 million in exploration funding for your projects Castle, Tanzilla and Pliny in 2013 and 2014. What are the next steps for these projects?

West Cirque established this relationship primarily through its reputation for a long-standing, strong scientific approach to exploration in British Columbia. Over the course of a year, we shared information, conducted property tours and were in discussions with Freeport. Also, during this time West Cirque had completed the first round of drilling at our Castle property, which yielded enticing results. Ultimately, Freeport was interested in advancing three of our projects (Castle, Tanzilla, and Pliny) clustered closely together in the Northern Stikine Terrane.

This year, together with Freeport we had another successful drilling round at Castle and future plans for this project will be dependent on our joint technical committee and management staff meeting later this year. Tanzilla has not yet been drill tested but we are keen on this project given the giant lithocap, extensive copper mineralization and buried porphyry that is there and that it has never been drilled before. We have completed much of the predrilling groundwork, including mapping and sampling, additional geophysics and have developed drill targets for what the drill program will look like in 2014.

Outside of the Freeport-McMoRan agreement, West Cirque has two projects in the Quesnel Trough: Heath and Aspen Grove. What are your plans in terms of moving these projects forward? Given our 2013 focus and momentum with the Freeport funded properties, West Cirque has not yet done justice to these projects, though both are compelling. Heath is also a copper-gold porphyry target located in northern BC and has a history of previous exploration by several operators, including drilling in the early 1990's. We have a great database of geophysics and

geochemical results to work with and exploring this area is a matter of developing drill targets. We are very excited about Aspen Grove, which we acquired late last year. The area is a prolific exploration and mining camp and there appear to be more copper occurrences in that part of British Columbia than anywhere else. In addition, this is a favourable area because the field season is much longer than northern British Columbia, allowing us to drill year around. We are actively looking to cement another partnership and begin aggressively exploring this area.

There has been an increase in terms of investment in British Columbia for porphyries with large resources with predictable grade. Why have we been seeing this uptake in the last few years?

I believe there has always been an acceptance that British Columbia is one of the premier places for large copper porphyry deposits. However for a number of years, particularly during this mining boom, many companies were focusing their efforts on Latin America which historically has been a relatively inexpensive place to operate and where there are a large number of high-grade copper deposits. In the last few years, the onset of resource nationalization and materially higher mining input costs in this region of the world, has leveled the playing field. •

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INTERVIEW WITH

Ron Thiessen

PRESIDENT AND CEO
HUNTER DICKINSON INC.

Hunter Dickinson Inc. (HDI) was founded in 1985 and has a track record of 19 public and private companies and 8 mines. Could you start by providing a brief overview of the company and its growth over the years?

HDI was founded by Bob Hunter and Bob Dickinson in 1985 and it started out with Bob and Bob operating one company and one project at a time. It really expanded in 1994 when a few other people joined and we became multi corporations and multi projects; that is when HDI was actually incorporated. Our aim was to capitalize on the reputation that Bob and Bob had developed in excellence in exploration: taking projects from relatively early stage through to feasibility and permitting, and then turning them over to major mining companies. During the “nuclear winter” of 1997 we shrank our operations but we redoubled our efforts to acquire projects that we felt had great potential at a great price. In 2003 and 2004, the industry turned and by that time we had picked up half a dozen stunning projects such as the Gibraltar mine. We then changed our exit strategy slightly to take projects to a point where they could either be joint ventured, sold or developed. Some projects still ended up being sold and some became independent of Hunter Dickinson over the years; once the companies were broadly held and run by independent boards, they were free to become independent. That move allowed us to focus on taking on new projects and companies. In late 2007, we set up and capitalized six new private companies and went out looking for the next generation of Hunter Dickinson companies. Today, Hunter Dickinson is an incubator of resource projects and companies. Our objective is to acquire assets in which we see opportunity where other people have lost faith, and take them to a point where we can joint venture, sell or develop them.

Vancouver and British Columbia are being affected by one of the worst bear markets in history. Is HDI seeing this as another opportunity to acquire top quality assets at a great price?

HDI is certainly looking to acquire assets in this market although access to capital is extremely constrained. Sometimes I feel a little bipolar here at Hunter Dickinson because the guys that are running the public companies are morose because nobody wants to talk to them, shareholders are anxious and capital is scarce. On the other hand, our corporate development sector often feels it has to buy everything because everything is selling at such steep discounts. Just because something is cheap, it does not mean that it works technically, financially or from a regulatory perspective; we still have to be very disciplined about how we go about it. When HDI acquires an asset, it is typically an asset that people have said does not work. The Northern Dynasty Pebble Project is a perfect example. The prior owners had determined that it was not viable and therefore we were able to acquire the asset over six years for \$14 million.

Following Anglo American’s withdrawal from the Pebble Project, Northern Dynasty will again own 100% of one of the world’s greatest stores of mineral wealth. What is your long-term strategy with the property?

Following Anglo American’s withdrawal from the Pebble Project, the Pebble Ltd Partnership will proceed under the sole ownership of Northern Dynasty. We have spent a tremendous amount of time, effort and money at Pebble on environmental and engineering studies because we know it is a sensitive jurisdiction with regards to the Bristol Bay salmon fishery. We are completely confident that we can engineer and build this mine safely, and that we can not only co-exist with fish, but also enhance the fishery physically and finan-

cially. To date, more than \$150 million has been invested in environmental baseline studies since we started the project out of a total project investment of around \$680 million. Engineering studies and other technical work being undertaken to initiate permitting under NEPA are well advanced.

There are three HDI-associated companies active in British Columbia: Taseko Mines Ltd, Amarc Resources Ltd and Quartz Mountain Resources Ltd. How important is the province to HDI and where does your main focus lay going forward?

British Columbia has become HDI’s number one focus over the years as we have seen changing dynamics around the world. There has been price inflation in terms of labor and energy costs in all areas of the world except North America. In Latin America and Africa, labor costs are up tenfold over the last decade; energy costs could be as much. Labor productivity in North America is very different than places like Latin America, where they typically employ between three and five times more people, so that makes our labor productivity so much more efficient. Hydro-electric power is also one of the most efficient, low cost energy sources; British Columbia has this in abundance while most other mining jurisdictions have to rely on some form of carbon power generation. We started seeing these trends about five years ago and subsequently started focusing initially on North America, and lately British Columbia. There is the opportunity for a renaissance in mining in the Western Cordillera, all the way from Mexico to Alaska. The challenge is whether or not the politicians have the courage to encourage people to embrace this industry. •

Better Days to Come

Mining in British Columbia in 2014

First coined by Isaac Newton in regard to the law of gravity, “what goes up must come down” is equally applicable to the mining industry. Governed by cycles, commodity prices for metals saw a dramatic run-up in 2011 and the first half of 2012 only to witness an equally precipitous fall toward the end of 2012 and throughout 2013. This decline was led by gold, which lost more than a quarter of its value in 2013 alone. Adding to the dire situation, prices for labor, energy and raw materials related to the mining industry increased in the same year. Reacting to the macroeconomic situation, mining companies in British Columbia and the world over approached investment in new projects with trepidation and largely focused on cost-cutting measures.

With the gray skies clearing and analysts suggesting that prices in 2014 will be more stable than in 2013, British Columbia’s mining sector, having trimmed much of its fat, is in a far more favorable position for the year ahead. Up to a third of the junior market could still disappear within the next 12 months as the market continues to correct itself, but companies with a strong portfolio of assets should thrive. While the more encouraging global economic situation will be an important driver of growth for British Columbia’s mining companies, the provincial government has been laying the groundwork to assure this industry’s future success. Acutely aware of its geographic proximity to Eastern markets, namely China, Japan and South Korea, the government has, as part of The BC Jobs Plan first delineated in September 2011, developed a strategy to significantly increase mineral production and exports to this region over the next few years. To achieve this, The BC Jobs Plan’s primary goal set an initial target of 2015 for the opening of eight new mines and upgrades and expansions to nine mines already in operation. As of the end of 2013, measured progress

has been made. Two new mines have been brought into operation, New Afton Mine, near Kamloops, and Mt Milligan Mine, near Prince George. Five more mines are under construction or permitted and major expansions have already been approved for six existing mines. Apart from the planned mine openings and enhancements, The BC Jobs Plan includes BC Hydro and the provincial government’s Northwest Transmission Line, slated to come into service in May 2014. At a total cost of \$736 to \$746 million, the Northwest Transmission Line is a 344-km, 287-kv project that will connect the Skeena substation, near Terrace, to a new substation located near Bob Quinn Lake. In addition to providing power to isolated First Nations towns, the Northwest Transmission Line could encourage the development of 40 new mining projects.

Another significant and particularly thorny issue for mining companies in British Columbia is their relations with First Nations groups in the areas in which they operate. Distinct from other provinces that have overarching treaties with aboriginal groups, British Columbia does not. Without settled treaties, many First Nations groups lack designated and legally binding territory, which can lead to problematic land disputes. Not typically a concern during the exploration stage, land disputes have the potential to become one once a mining company moves to develop a project on disputed land. Ahead of the curve, the BC Jobs Plan promised 10 new non-treaty agreements in place with B.C. First Nations by 2015, but has already established 21 with the intention of completing 7 more.

Necessary infrastructure improvements and agreements with First Nations are vital considerations for prospective investors, but the attractiveness that they bring to the province had the potential to be dampened considering Canada’s prolonged permitting process.

To address the concern over stalled mineral exploration permits, another facet of The BC Jobs Plan called for an 80% reduction in the backlog of “Notices of Work” for mining. Already achieved, the Notice of Work application is now completed in an average of 63 days, a significant improvement from the prior 110-day average.

Although the BC Jobs Plan has concrete goals that it is working toward to encourage growth within the mining sector, a long-term threat to the industry still looms. It is estimated that over the next 10 years British Columbia will require 15,000 new workers for the mining industry, chiefly the result of an upcoming wave of personnel retirements. Complicating the situation, these positions to be filled are competing with higher paying opportunities in the oil and gas sector in both the oil sands and in Fort McMurray in Alberta and also jobs on LNG pipeline projects that may soon cross the province. Private initiatives to encourage more employee participation in the mining industry are in place, but the government must take a much more proactive role in this regard to avoid an adverse labor shortage.

Although commodity prices for metals are not expected to see a rebound to 2011 and 2012 levels in 2014, there is room for optimism, particularly in a region such as British Columbia. The province will continue to feel pain as struggling mining companies are swallowed up, but those companies with sound financial metrics and assets will reap the benefits of the work done by the B.C. Jobs Plan. •

This article originally appeared in the GBRoundup, Global Business Reports' weekly newsletter containing exclusive interviews and analysis from our on-the-ground teams. To subscribe to the GBRoundup or view past articles, please visit gbroundup.com.

Vancouver: The World's Mining Barometer

“One of the biggest issues affecting the industry is how to deal with emerging markets. BDO works hard in foreign jurisdictions to gain and retain clients. For the most part, BDO assists its Canadian clients in regard to entering global markets and in connection with acquiring companies overseas. With a large percentage of our clients operating outside of North America the company has a wealth of experience dealing with emerging markets. The greatest issue within each country is specific to its geographical local, history with mining and other factors, all of which are kept in consideration. BDO Canada also relies on other members of our international group to help with strategic decisions in areas where they have specific local experience.”

- Michael Madsen,
Office Managing Partner – Vancouver and National Leader –
Energy & Natural Resources, BDO Canada LLP





An Introduction to Vancouver

A brief overview of the world's mineral hub

Canada and Vancouver as the World's Exploration Hub

Source: Natural Resources Canada



- Canada
- Asia-Pacific
- Europe and the FSU
- United States
- Africa and the Middle East
- Latin America and the Caribbean

48%
29%
9%
6%
3%
5%

It is said that to be successful as a mineral exploration and mining company you need to have three things: a good deposit; strong management; and capital. Vancouver's companies find deposits all over the world. The management and money, however, they find at home.

Vancouver is undoubtedly the world's exploration hub, with estimates of between 800 and 1,200 global mining and mineral firms based in the city. An estimated 60% of all Canadian exploration companies are based in British Columbia, mainly in Vancouver. Increasingly, as these companies mature, it is also becoming a hub for major mining players as well: two of the world's largest mining companies have been there for a while. The breadth of operations from these companies is diverse – companies from Canada have a presence in over 100 countries outside its borders, with Vancouverites accounting for most of these. "Our samples come from everywhere: from people exploring within the province, and as far away as Europe, Asia, the Middle East and South America, with the exception of Russia due to their 'sovereign soil' law. It is an advantage that Sepro is such an internationally diverse company and able to make our name known in the foreign market. There are times when 90% of our samples come from outside North America; they are sent by mining companies of all sizes," explained Ish Grewal, president of Met-Solve Laboratories Inc., who provide mineral and metallurgical testing services to the industry.

The initial cause behind Vancouver's establishment as a mineral hub for the world may well date to the unfriendly regulatory environment of the province in the 1990s. A series of provincial policies that restricted mining activity in British Columbia motivated companies to seek their deposits elsewhere. The presence of the Vancouver Stock Exchange, which existed

until 1999, also played a role. However, the continued status of Vancouver relies on the abundance of capital and expertise it holds.

The diversity of companies now operating out of Vancouver has also become an advantage in and of itself: a virtuous circle that is especially beneficial in times of market slowdown such as that experienced at the moment. This diversity creates a plethora of business opportunities that in turn mitigates risk, attracting service companies and financiers that support an ever-growing industry. "The ability to work out of Vancouver allows us to take advantage of burgeoning markets, including South America, while compensating for regions currently experiencing slowdowns. Having a presence in Vancouver provides many prospects for the application of our services," explained Bob McCarthy, general manager – Americas for Snowden Mining Industry Consultants.

Vancouver's Association of Professional Engineers and Geoscientists of BC boasts 23,000 members: an impressive testament to the technical expertise that exists in the province. The University of British Columbia's mining engineering course is considered one of the world's best. And a range of associations and conferences based in Vancouver bring together companies and talent in a way that few other places can match.

"Vancouver is one of the world's epicenters for mining finance and a center of excellence for the industry. While GeKKO's focus does not largely include British Columbia, having a presence in Vancouver allows us to interact with our clients who are based in the city and have projects around the world. In addition, having a location here allows GeKKO to tap into the wealth of mining-related expertise in Vancouver," concluded Peter Latta, manager - North American operations for GeKKO Systems, a manufacturer of innovative mineral processing equipment. •

"Vancouver is the heart of the junior mining community and it is important to have a presence in the city for both financing and networking. An added benefit of Vancouver is the city's proximity to potash markets and international financiers. The biggest challenge currently faced by the Milestone Project is financing and having access to international groups that cannot only deliver the funding needed to build the project but that are also situated in the areas of potash demand is crucial."

- Dean Pekeski, Executive Vice President,
Western Potash Corp.

"Vancouver is the center of excellence for mineral processing. Within the three business sectors we have different business units, including non-ferrous, mining and mineral processing. Within Hatch mineral processing covers comminution, flotation and gold leaching. Our Vancouver location places Hatch in the mining hub for junior exploration companies that have worldwide projects."

- Gavin Ritson, Director - Global Mineral Processing,
Hatch Ltd

"Vancouver is a major mining hub, but considering the volatility of the industry the Vancouver office is involved in other sectors. Given that it is the group's fourth largest office it is also active in transportation, infrastructure, power projects and other sectors involving large-scale commitments. At the peak of the market, mining occupied up to 90% of the Vancouver office's time, but as the market went into free fall, beginning in late 2012, mining went down to 10% of our activity. One could observe a considerable swing in the number of mining focused roles."

- Brent Lyon, National Practice Leader, Engineering and Technical,
David Aplin Group

"Vancouver is the global center of mining engineering and supply and the financing capital for the junior mining market. The city also serves as the headquarters for many major mining companies. British Columbia is very much also a focus for Stantec where we currently have around 900 employees, operating from eight offices in a range of businesses. Our aim is to meet the needs of the multitude of mining companies based here and to provide them with our full suite of services, which includes the environmental side."

- Tony Wachmann, Director - Mining, Metallurgy & Infrastructure,
Stantec

"AME BC was founded in 1912 and last year we celebrated our 100th anniversary. We are based in Vancouver and represent over 4000 individual members and over 300 corporate members that are focused on successful and responsible mineral exploration and development. Vancouver is the center for mineral exploration and development in the world; approximately 60% of all publicly listed companies in Toronto, between 900 to 1,000 companies, are British Columbia based, primarily in Vancouver."

- Gavin Dirom, President and CEO,
Association for Mineral Exploration British Columbia (AME BC)

NUMBER	COMPANY	PROJECT	WHERE	STATUS	MINERAL
1	Argentex Mining Corp.	Pinguino	Argentina	development	silver-gold

"Argentex is an exploration group that is second to none but we had to determine how this exploration group could take a project like Pinguino forward. We made the decision to look for a strategic investor with development and implementation experience and found Austral Gold, which is listed in Australia and has a Chilean open-pit underground operation. More importantly, Austral Gold has a technical management team and the expertise that complements our exploration group. In addition, they have experience in Argentina in other fields and this knowledge and local connections will help us as we look to take the project forward and consider our other activities in Argentina. Given, the number of synergies, we are currently in discussions with our strategic partner about a merger."

- Michael Brown, President and CEO, Argentex Mining Corp.

2	B2Gold Corp.	Limon	Nicaragua	producing	gold
3	B2Gold Corp.	La Libertad	Nicaragua	producing	gold
4	B2Gold Corp.	Masbate	Philippines	producing	gold
5	B2Gold Corp.	Otjikoto	Namibia	development	gold

"Otjikoto has extraordinary infrastructure and is located 40 minutes from two towns and there are major aquifers on site. At Otjikoto we completed a highly accretive deal in which B2Gold paid around \$90 million in shares for Auryx Gold Corp. Otjikoto's feasibility study shows a 12 year mine life with 141,000 oz/y at an operating cost of \$534/oz for the first five years. The company will be spending \$244 million to build the mine at a 5% discount rate, generating an after-tax internal rate of return of 23.6%. The Wolfshag zone has shown some incredibly high grade results and indicates that there is potential to expand reserves and mill through put capacity. B2Gold will start production in the fourth quarter of 2014 and will expand production by 20% in view of 170,000 oz/y."

- Clive Johnson, President and CEO, B2Gold Corp.

6	Bear Creek Mining Corp.	Corani	Peru	development	silver-lead-zinc
7	Bear Creek Mining Corp.	Santa Ana	Peru	development	silver

"Exploring the Morelos Sur project, we have two significant opportunities: one is our La Magnetita target, which is an incredible expression of gold on surface above two large intrusive stocks. Seeing about a 25 square kilometre gold anomaly on the surface gave us confidence that a deposit could be nearby. Working in Mexico, we network as much as we can for additional projects and that is how we were introduced to El Barqueño. For us it was a very easy decision: a property with past production via heap leach. There was huge land expression of epithermal veins on the surface, and really good grades according to non-43-101 historical results. We discovered about 17 km of strike length by mapping veins on the surface, as well as soil anomalies over the top of those veins. So far, we have trenched about 3 km and the average grade of our trenches is over 3 g/mt of gold."

- Ivan Bebek, Co-founder, President and CEO, Cayden Resources Inc.

8	Cayden Resources Inc.	Morelos Sur	Mexico	development	gold
9	Cayden Resources Inc.	El Barqueño	Mexico	development	gold
10	China Gold International Resources Corp. Ltd	CSH	China	producing	gold

"China Gold International growth strategy has two major parts, organic growth and acquisition. Both the CHS Gold Mine and the Jiama Copper Polymetallic Mine are currently under expansion to reach the 260,000 gold oz/y and 176,000 million lbs of copper /y production guidance. Our immediate goal is to increase the 30,000 mt/d at the CHS Gold Mine to 60,000 mt/d and to move production from 139,000 oz/y in 2012 to expected 260,000 oz/y in 2015. Most of the CHS Gold Mine's expansion construction was completed this August and full completion is expected at the end of this year. This will allow the mine to increase its production to estimated 145,000 gold oz/y this year. Next year the plan is to bring production to 208,000 oz/y and, by 2015, to reach full capacity, 260,000 oz/y."

- Jerry Xie, Executive Vice President and Corporate Secretary, China Gold International Resources Corp. Ltd

11	China Gold International Resources Corp. Ltd	Jiama	China	development	copper-polymetallic
12	Endeavour Silver Corp.	El Cubo	Mexico	producing	silver
13	Endeavour Silver Corp.	Bolañitos	Mexico	producing	silver
14	Endeavour Silver Corp.	Guanaceví	Mexico	producing	silver
15	First Majestic Silver Corp.	La Parrilla	Mexico	producing	silver
16	First Majestic Silver Corp.	San Martin	Mexico	producing	silver
17	First Majestic Silver Corp.	La Encantada	Mexico	producing	silver
18	First Majestic Silver Corp.	La Guitarra	Mexico	producing	silver
19	First Majestic Silver Corp.	Del Toro	Mexico	producing	silver
20	Fission Uranium Corp.	Patterson Lake South (PLS)	Canada	development	uranium
21	Lupaka Gold Corp.	Crucero	Peru	development	gold
22	Lupaka Gold Corp.	Invicta	Peru	development	gold
23	Mineral Mountain Resources Ltd	Holy Terror	South Dakota	development	gold
24	NOVAGOLD RESOURCES Inc.	Donlin	Alaska	development	gold

"In three years' time we will be just about done with permitting and preparing for construction. In addition to an excellent asset base, the company has got a very strong supportive shareholders base, and we also have a strong cash position to fund Donlin Gold through permitting. lot of money.: Wwe are fortunate to have raised money before the collapse in mining equities, so financially we are very sound. We are in great shape whatever the next five years brings us."

- Gregory Lang, President and CEO, NOVAGOLD RESOURCES Inc.

NUMBER	COMPANY	PROJECT	WHERE	STATUS	MINERAL
25	Panoro Minerals Ltd	Cotabambas	Peru	development	copper-gold-silver
26	Panoro Minerals Ltd	Antilla	Peru	development	copper-molybdenum
27	Pilot Gold Inc.	Kinsley	Nevada	development	gold
28	Pilot Gold Inc.	TV Tower	Turkey	development	gold
29	Pilot Gold Inc.	Halilaga	Turkey	development	gold
30	Silver Standard Resources Inc.	Pirquitas	Argentina	producing	silver-zinc
31	Tintina Resources Inc.	Black Butte	Montana	development	copper

“Victoria Gold is looking to raise CAD \$430 million by early 2014 so that we can begin construction in the spring. Given the current state of the capital markets, Victoria Gold is looking at a number of alternatives, including selling a gold stream, forward sales of gold or bringing in a partner. While Victoria Gold still has early 2014 as a target to move this project into construction, we are going to be prudent in our financing decisions to preserve and protect shareholder value and to not dilute the value of the shares.”

- John McConnell, Director, President and CEO, Victoria Gold Corp.

32	Victoria Gold Corp.	Eagle	Yukon	development	gold
33	Victoria Gold Corp.	Santa Fe	Nevada	development	gold
34	Western Lithium USA Corp.	Kings Valley	Nevada	development	lithium
35	Western Potash Corp.	Milestone	Saskatchewan	development	potash



This map includes those projects and companies mentioned in this editorial. It does not represent a complete list of exploration and production projects in the World and is intended for reference purposes only.

Gold

Gold, the premier choice for investors the world over, has not looked so stable in 2013. Two days of carnage in the second quarter of this year saw gold drop a record 23% over April 15 and 16. Though there may be some relief ahead, RBC Capital Markets believes that the capital costs to build mines appear to have stabilized across the gold industry, after rising 60% from 2009 to 2012. Looking forward, RBC expects a reduction of 5% to 10% in 2014, because of higher productivity and lower activity levels across the sector. Analysts also predict that all-in sustaining costs could fall roughly by \$150/oz to an estimated \$917/oz due to cost cutting efforts and the fact that low cost mines are coming online. Vancouver's wealth of mining companies includes many that focus on gold across the world. The following snippet of this myriad of gold explorers, developers and producers shows that while gold prices may have diminished, the search for this precious metal is alive and well.

Chasing the American Dream

Vancouver-based NOVAGOLD RESOURCES is set to make a big splash with its Donlin gold project, located in the historic Kuskowkim Gold Belt of southwest Alaska. Donlin, the largest undeveloped gold deposit in the world, with approximately 34 million oz of proven and probable gold reserves averaging 2.1 g/mt, has understandably become the company's number one focus. "Once in operation, it is expected to produce approximately 1.5 million oz/y in the first five full years and 1.1 million oz/y over a 27-year mine life," said Gregory Lang, president and CEO. It is also set to be among the lowest-cost producers in the world; setting the mine apart from the vast majority of projects.

Mineral Mountain Resources, led by the father-son team of Nelson and Bradley Baker is looking to make its mark in South Dakota. Mineral Mountain has grown its land holdings in excess of 10,000 acres in an area that was previously staked in a tremendously fractioned manner all the way back in 1876. Mineral Mountain now has up to 132 drill holes, with ore zones averaging around 7 g/mt to 8 g/mt gold and over 7 m wide at its Holy Terror project. Chief to their success in obtaining eight of the 10 deposits in the area was the fact that Mineral Mountain was the first company to fly high-resolution airborne surveys over the entire property. "Since the gold mineralization is associated with a strongly magnetic and conductive iron formation, we flew an airborne magnetic and electromagnetic survey, which indicated that the host rocks for the gold mineralization were far more extensive than was previously thought," said Nelson Baker, president and CEO.

Mexico, Still Maintaining Interest

Mexico's Congress approved a new 7.5% mining royalty on earnings before interest, taxes, depreciation and amortization. Meant to increase the feeble tax revenues of the Mexican state, it has instead elicited a strong response from mining companies who have threatened to cut investment.

Cayden Resources entered Mexico in a large way, with the purchase of its Morelos Sur property for \$25.5 million. At the La Magnetita East target the company found that a third of the material was running at over one gram on surface in August. The company also drilled in search of a scarn target and hit two meters of 7.5 g/mt gold and the same rock types at Goldcorp's nearby Los Filos mine. Cayden's other property, El Barqueno, 130



INTERVIEW WITH

Clive Johnson

PRESIDENT AND CEO
B2GOLD CORP.

B2Gold Corporation now has three gold producing properties, one property moving into production a number of exploration assets. Could you provide our readers with a brief introduction to your company?

B2Gold was created by the successful executive and technical teams which ran Bema Gold Corp. Bema was developed from the ground up and morphed from an exploration company to one that also proved to be a highly capable producer. It was a hybrid company; combining professional exploration with accretive acquisitions, with the ability to finance, build and run mines well. One of the keys to this and B2Gold's success is the length of time this team has been together, a total of 25 years. The team looked to recreate Bema's success and B2Gold was built up with a series of acquisitions and exploration success.

Could you tell us a bit more about B2Gold's corporate social responsibility initiatives?

After B2Gold acquired Central Sun Mining's Nicaraguan assets, including the El Limon mine, it immediately implemented operation and community relations initiatives. The mine was producing 40,000 oz/y and it now produces over 60,000 oz/y. More importantly, B2Gold dramatically improved safety and unveiled a major corporate social responsibility program. Canadian and other mining companies had previously owned the mine and were never committed to the long term: they did not spend money on new equipment, safety, exploration or the surrounding community. B2Gold told both the Nicaraguan government and the unions at the mine to give us a year and there has not been a labor dispute at El Limon for three years due to the changes we have made. The corporate culture at B2Gold is based on fairness, transparency and respect.

Our company forms committees with local governments in order to discuss and implement projects that fit the priorities of the community.

What steps has B2Gold taken to improve operations at El Limon and La Libertad?

When B2Gold acquired El Limon it was not a great operation and we immediately looked to improve production at the site by spending money on upgrades to the mill, new equipment, safety and productivity training. This was in addition to exploration success near the mine site. Our La Libertad property is another great example of the previous owners overlooking exploration potential on their property. B2Gold's strategy for acquisitions has always been based on solely making accretive deals for ounces that are in the ground, not those that might be there. At La Libertad the focus had been on the mill and the three deposits in the immediate area. B2Gold released its exploration team at La Libertad and found the Jabali deposit 10 km away. Jabali is of significantly higher grade and the company is currently starting to mine the deposit, which has led to dramatic increase in production. The example of La Libertad highlights the second part of our growth model: exploration based up increasing mine life and production. At El Limon production is growing, moving to 60,000 oz/y and soon to 70,000 oz/y. At El Libertad the growth has been to 110,000 oz/y in view of 150,000 oz/y as we bring more ore from Jabali.

What are the future plans for B2Gold?

Our exploration money is increasingly focused on brownfield projects, while continually looking for new major discoveries. B2Gold looks to always have two to three grassroots targets of high quality. Any explo-

ration deal has to include B2Gold spending money in the ground in order to gain an interest in the project. In this economic climate this has proven to be very attractive for junior mining companies. B2Gold's strategy has always been to have \$100 million excess in the bank, to continually run and improve our existing three gold mines and to build Otjikoto in Namibia.

Could you tell us a bit more about B2Gold Otjikoto project in Namibia?

Otjikoto has extraordinary infrastructure and is located 40 minutes from two towns and there are major aquifers on site. At Otjikoto we completed a highly accretive deal in which B2Gold paid around \$90 million in shares for Aurix Gold Corp. Otjikoto's feasibility study shows a 12 year mine life with 141,000 oz/y at an operating cost of \$534/oz for the first five years. The company will be spending \$244 million to build the mine at a 5% discount rate, generating an after-tax internal rate of return of 23.6%. The Wolfshag zone has shown some incredibly high grade results and indicates that there is potential to expand reserves and mill through put capacity. B2Gold will start production in the fourth quarter of 2014 and will expand production by 20% in view of 170,000 oz/y. The government of Namibia is highly supportive of the project and B2Gold believes that it will be a model mine for the country. Our community social responsibility program includes a game farm for educational purposes; highlighting how mining and conservation can work together. •

km west of Guadalajara, also showed some promising results in September. “In our initial drilling results we released on October 16, our best hole was 59 m of 2.2 g/mt gold and another 18 m of 1.9 g/mt in the same hole,” said co-founder president and CEO, Ivan Bebek.

The company now plans to drill the 3 km of strike length identified through trenching within the next six months, in the belief that the project will yield north of 1 million oz.

Peruvian Gold

The Peruvian-Canadian Chamber of Commerce and Peru’s Mines and Energy Ministry jointly announced on October 28 that for the first time ever this South American country would take part in the 2014 Prospectors and Developers Association of Canada (PDAC). With this sponsorship move, the government of President Ollanta Humala is signaling that Peru is open for business.

Already on the ground is the Vancouver-based

explorer Lupaka Gold, whose Crucero gold project has over 2 million oz in pit-constrained resources. Significantly, Lupaka has only drilled one of the 11 known anomalies at the project. “This year we are doing fieldwork on the other 10 anomalies to identify the next drill targets. Lupaka believes that the long-term potential of the property is a multiple of the 2 million oz figure,” said Eric Edwards, president and CEO.

The company’s all-Peruvian technical team is currently in the process of defining the project’s next drill targets. In addition to this property, Lupaka is also actively looking to move a robust long term strategy to fruition. This begins with the company’s active search to find a Peruvian producer for its 1.2 million equivalent oz Invicta Gold project and continues with a structure and multi-layered line of attack; one which includes bringing in a partner for Southern Legacy Minerals’ AntaKori project, of which Lupaka is the largest shareholder. “Lupaka has three main strategies that it is implementing. The first is near-term development and production [at Invicta]...

the midterm strategy is resource expansion and discovery [at Crucero]...the long term strategy is project acquisition,” said Edwards.

Carving Up Turkey for Gold

Reuters reported in January of this year the gold production in Turkey is expected to rise to 36 mt from 29.5 mt in 2012. The Turkish Gold Miner’s Association is predicting a jump to 50 mt in 2015, which would place the country in the top 15 producers of gold in the world. Overall, the mining sector has flourished, with exports jumping to \$3.3 billion over the first eight months of 2013, up 26.5% over the same period in 2012, according to the Istanbul Minerals and Metals Exporters Association.

Looking to take advantage of this upswing in mining activity is Pilot Gold, headed by president, CEO and director Matthew Lennox-King. Utilizing what the company describes as the “Science of Discovery”, the application of strong exploratory science and aggressive drilling, the company is focusing on its TV Tower project in the Biga District, the location of a number of important deposits. “TV Tower is actually a district in its own right and Pilot Gold has defined drilling discoveries at both [the KCD and Kayali targets],” said Lennox-King.

On September 5 Pilot Gold acquired the Karaayi project, which the company views as the extension of the Kayali oxide gold target, the addition of which increases the allure of the southern part of the TV Tower tenure. Moving forward the company looks to effectively demonstrate that TV Tower is a district in its own right, with a number of strong deposits.

Producing Gold in Namibia

In the second quarter of this year gold production in Namibia declined by 3.1%, helping push the annual decline to an astonishing 37.3%. In response to diminished production of gold and slowdowns in mining the Namibian Ministry of Mines handed out 406 Exclusive Prospecting Licenses for exploration. This 53.8% increase, when compared to the same period in 2012, includes many for explorers of precious metals.

LUPAKA GOLD

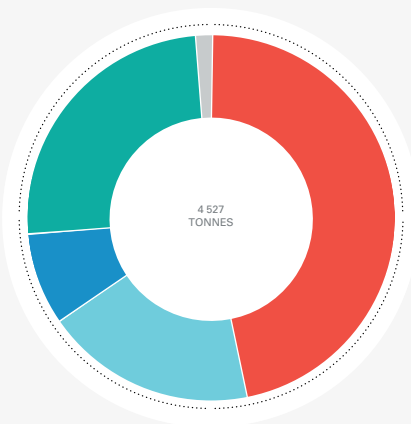
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Gold Demand 2013

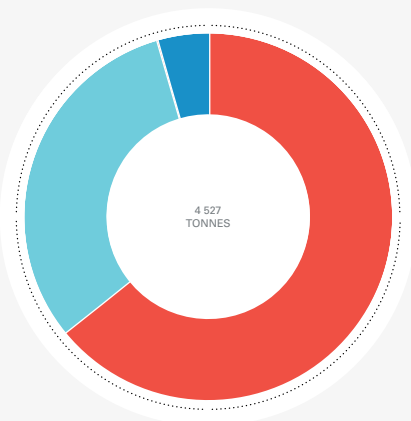
Source: Thompson Reuters GFMS, World Gold Council



	TONNES
• Jewelry	2 137
• Other Fabrication	823
• Net Official Sector Purchases	361
• Physical Bar Investment	1 166
• Net Producer De-hedging	40

Gold Supply 2013

Source: Thompson Reuters GFMS, World Gold Council



	TONNES
• Mine Production	2 917
• Old Gold Scrap	1 397
• Implied Net Disinvestment	213

B2Gold is currently constructing its Otjikoto project, in view of bringing it into production during the fourth quarter of 2014. According to the latest reports, construction is both on schedule and within budget. No one is more excited about this prospect than B2Gold's president and CEO Clive Johnson. "Otijkoto's feasibility study shows a 12-year mine life with 141,000 oz/y at an operating cost of \$534/oz for the first five years."

The extraordinary infrastructure at Otjikoto, its close distance to two towns and the fact that there are major aquifers on site have all helped to bring down costs. The company looks to ramp up this project in 2015 by 20%, bringing production to 170,000 oz/y. There is also potential upside at site as well. "The Wolfshag zone has shown some incredibly high grade results and indicates that there is potential to expand reserves and mill throughput capacity," said Johnson.

An Inch of Time is an Inch of Gold

Chinese gold output rose 8.2% to more than 270 mt from January to August of this year, according to the China Gold Association, continuing the country's run as the world's largest gold producer for six consecutive years.

Playing a significant part in this production growth is China Gold International Resources, the Vancouver-based flagship and only overseas listing vehicle for China's largest gold producer, China National Gold. The company recently completed the construction of an additional 30,000 mt/d crusher and ADR plant at its CHS gold mine in the Inner Mongolia Region, with continued construction to be finished at the end of this year. The expansion is in view of immediately bringing production from 30,000 mt/d to 60,000 mt/d with an expected increase in output from 145,000 oz this year to a full capacity of 260,000 oz in 2015. China Gold's strategic overarching goal is what some would deem highly aggressive, to reach 500,000 oz/y gold and 330 million lb/y copper, in part through the expansion of the CHS gold mine and at the company's Jiamia copper-polymetallic mine in the Tibet Autonomous Region. "The other half will be fulfilled through selective acquisition, to deliver the best returns to our shareholders" said executive vice president and corporate secretary, Jerry Xie. •



*Finding Mexico's next
major gold deposit*

TSX.V: CYD | US SYMBOL: CDKNF

- ▶ Two premier Mexican gold exploration projects in Mexico; El Barqueño and Morelos Sur
- ▶ Both projects have exceptional gold exploration opportunities
- ▶ Advancing El Barqueño with ongoing drill programs



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INTERVIEW WITH

Ivan Bebek

CO-FOUNDER, PRESIDENT AND CEO
CAYDEN RESOURCES INC.

Cayden Resources Inc. is a Vancouver-based exploration company focused on the discovery, financing and monetization of precious metal assets in Mexico. Could you provide an introduction to your company?

In Cayden's case, we went after some very expensive assets. The Morelos Sur project in Mexico was our first acquisition; it is close to a major gold mine in the heart of a belt that has several other large gold mines. The acquisition was driven by the opportunity to purchase a strategic land position around Goldcorp's Los Filos mine; we are not sure why they did not own it but we saw value there: earlier this year we sold some land to Goldcorp for \$15.744 million. Morelos Sur cost us approximately \$25.5 million and you do not see too many juniors taking on projects that cost that much to acquire.

Exploring the Morelos Sur project, we have two significant opportunities: one is our La Magnetita target, which is an incredible expression of gold on surface above two large intrusive stocks. Seeing about a 25 km² gold anomaly on the surface gave us confidence that a deposit could be nearby. Working in Mexico, we network as much as we can for additional projects and that is how we were introduced to El Barqueno. For us it was a very easy decision: a property with past production via heap leach. There was huge land expression of epithermal veins on the surface, and really good grades according to non-43-101 historical results. We discovered about 17 km of strike length by mapping veins on the surface, as well as soil anomalies over the top of those veins. So far, we have trenched about 3 km and the average grade of our trenches is over 3 g/mt of gold.

On September 4 El Barqueno's Peña de Oro target extended the strike length and set the

stage for drilling, can you tell us about the significance of this development?

We first started in the Azteca area, and then we moved onto Pena de Oro, and then made the play to acquire more land because at both areas we encountered multiple high-grade trenches averaging over 3 g gold. This gave us the confidence that might be in a large system and we wanted to own as much of the land as we possibly could. In our initial drilling results we released on October 16, our best hole was 59 m of 2.2 g/mt gold, and another 18 m of 1.9 g/mt in the same hole. That was the first discovery hole for us in Barqueno.

Where are you looking to take the property in the immediate future and what is your target from a corporate strategy standpoint?

We want to drill the 3 km of strike length that we have identified through trenching within the next six months. Cayden wants to see how many ounces we can identify. It is a bit early to speculate too specifically but we believe that it will definitely be north of one million ounces, and it could go substantially bigger. This part of Mexico is probably one of the best jurisdictions in terms of access to infrastructure as well as the topography and layout of the land. If a large enough deposit is discovered here it could be very profitable as a major producing mine.

In August, Cayden Resources announced results from its 13-hole core drilling program at the La Magnetita East target on its Morelos Sur concession. Could you provide us with an overview of the results in view of its similarity to Los Filos and Morelos gold deposits?

At Magnetita, we drilled underneath a 25 km soil anomaly and found that a third of the material was running at over one gram

on surface; Goldcorp is mining at 0.69 g/mt basically 2 km downhill from where we found that anomaly. We drilled in search of a scarn target and hit 2 m of 7.5 g/mt of gold as well as all of the same rock types that you see at Los Filos, so we believe that we are in the same type of system. I can quantify this because Dave Jones who is on our board is credited with the discovery of Los Filos. We have also drilled the Las Calles concession and have hit holes as good as 28.5 m of 3.2 g/mt gold, we understand this and a few other holes that we have drilled at Las Calles to be the continuation of the Los Filos mineralization into our property. All things being fair, we expect to sell that at some point to Goldcorp or the highest bidder.

Given your experience in Mexico, what advice would you give to other Canadian juniors trying to enter this region?

There have been no real issues for any of the companies working here. Mexico is stable, it has a history of foreign companies investing in the country, and it also has several majors and mid-tier companies that are actively involved and definitely have the Government's ear. That gives us confidence. As a downside, things can take time in Mexico; mineral tenure is good, just be prepared to be patient on certain things. •



INTERVIEW WITH

Eric Edwards

PRESIDENT AND CEO
LUPAKA GOLD CORP.

Lupaka Gold Corp is a Vancouver-based gold explorer with a focus on Peru and its flagship Crucero Gold Project. Could you provide an introduction to your company and how it came to obtain Crucero?

In 2010, the market was still quite active in supporting gold projects when Lupaka Gold saw a need in the marketplace for an explorer dedicated solely to gold in Peru. That has been the strategy that this company has implemented and will maintain going forward. Toward this goal, Lupaka has an office in Vancouver and Peru. We have an all-Peruvian technical staff that is very experienced and what we believe to be the best explorative group in Peru.

The Crucero Gold Project was brought to our attention in 2009 through personal relationships that we had developed. The property was owned by four Peruvian business people and was acquired by our chairman Gordon Ellis and company co-founder Geoff Courttnall. At the time the property was acquired, it had no resource. In 2010, Lupaka published a 43-101 indicating an initial discovery of 800,000 oz and in October of 2013 announced that the project now has over two million ounces in pit-constrained resources.

Could you provide an overview of the Crucero Gold Project and where you are looking to take it in the near-term?

While Crucero has an existing resource of over two million ounces on it, Lupaka has only drilled on one of the eleven known anomalies and there exists others that have many of the same signature elements; strong ground magnetics, regional structures and geochemical signatures. This year we are doing fieldwork on the other 10 anomalies to identify the next drill targets. Lupaka believes that the long-term potential of the property is a multiple of the 2 million oz figure. The Peruvian technical

team is moving quickly, applying a systematic and scientific approach to wide scale reconnaissance-type geochemical mapping. At the end of this year or the second quarter of 2013, Lupaka aims to zero in on where our next drill targets will be and what will be the highest probability to hit the next resource envelope.

In addition to the Crucero Gold Project, Lupaka has a 100% stake in the Invicta Gold Project in Peru and a stake in Southern Legacy Minerals. What are the advantages of this diversification strategy?

Invicta is a near-term production project that would be best developed with a strategic partner. Toward that end, we have spent the better part of 2013 looking for a partner. Invicta is one of the few projects in Peru that is at a stage that, under the proper ownership, could be put into production in less than three years. At 1.2 million equivalent ounces, it is relatively small, limiting Lupaka's potential audience but we are looking at mid-tier companies in Peru that have experience constructing and operating, including permitting and licensing. Finding the right partner for Invicta is important for our long-term strategy because while Lupaka is strong in terms of exploration and discovering and growing gold resources, we need to ally ourselves with good Peruvian producers.

In terms of Southern Legacy Minerals, Lupaka is the largest shareholder with 17% ownership. This project fits into our long-term strategy of wanting to partner with major Peruvian producers. Southern Legacy's property is less than 10 km distance from two major producers, Gold Fields and Buenaventura. The proximity to these companies opens the door for discussions with these two potential partners.

In July 2013, Lupaka announced a renewal of its community agreement for four years.

Could you talk to your efforts to engage with the local community?

Lupaka cannot overemphasize the importance of positive community relations in Peru. Our efforts are directed toward building relationships and trust and the only way to do this is to be as consistent as you can over a long period, deliver what you promise and respect the traditional culture. This year Lupaka was fortunate to see everything come together in this regard: the four-year agreement, an environmental impact assessment and a number of family agreements. These achievements are the result of showing up every day, listening to the communities and reacting accordingly. Lupaka works to communicate the company's position and make sure that the communities understand the impacts and benefits.

As a final word to our readers, when Global Business Reports returns in two to three years' time to complete another editorial on Vancouver, what will be the topics of conversation with Lupaka Gold?

Lupaka has three main strategies that it is implementing. The first is near-term development and production. Lupaka's intention for Invicta is for it to be well advanced and in the construction phase with a partner. Permits should be in place and we will be looking toward commissioning and seeing cash flow. The midterm strategy is resource expansion and discovery. For Crucero, Lupaka intends to have identified the next resource zone and will be expanding gold resources in that area. The long-term strategy is project acquisition. The price of gold may remain soft for a period of time, but will eventually recover and move higher. In the interim, Lupaka is trying to build as broad a base of gold assets possible to be able to provide investors with a springboard when that recovery does occur. •

Silver

Alongside gold, silver has taken a serious hit this year. The silver spot price has lost 26% year-to-date, trading around the low \$23 mark. Though not all is doom and gloom, commodities research firm CPM Group said silver could reach record highs over the next decade. The significant driving force behind this rise will be industrial demand, complemented by a supply drop.

Given this downturn in silver prices, mining companies have sought to drive down costs and increase operational performance. Silver Standard Resources unveiled a multistage process to enact cost saving measures at its Pirquitas silver-zinc mine in Jujuy Province, Argentina. "Our priority in 2011 was recapitalizing the company and bringing Pirquitas to a more stable format," said W. John DeCooman Jr., vice president for business development and strategy.

2012 saw the company exceed production levels and meet cost guidance and in 2013 the company entered into the next stage of recovery. "The restructuring program has focused on the basics: improving employee efficiency and ensuring that the mine can operate faster, cheaper and better across all facets of the operations."

This cost reduction strategy has even extended to Silver Standard's relationship with smelters, which have allowed the company to secure better downside protection.

In Peru, Bear Creek Mining recently announced the approval of its Environmental and Social Impact Assessment (ESIA) for the company's Corani project, in the Department of Puno. The project, as highlighted in a feasibility study from 2011, has proven and probable mineral reserves of 270 million oz of silver, 3.1 billion lb of lead and 1.7 billion lb of zinc. "It has been the object of very strong interest from buyers in the form of off-take agreements, given the large amount of high quality lead-silver concentrates," said president, CEO and director Andrew Swarthout.

The approved ESIA now provides the company with a strong base to attract funding and moving forward the company looks to have Corani producing 13 million oz/y of silver.

Silver Price

Source: bullionvault.com

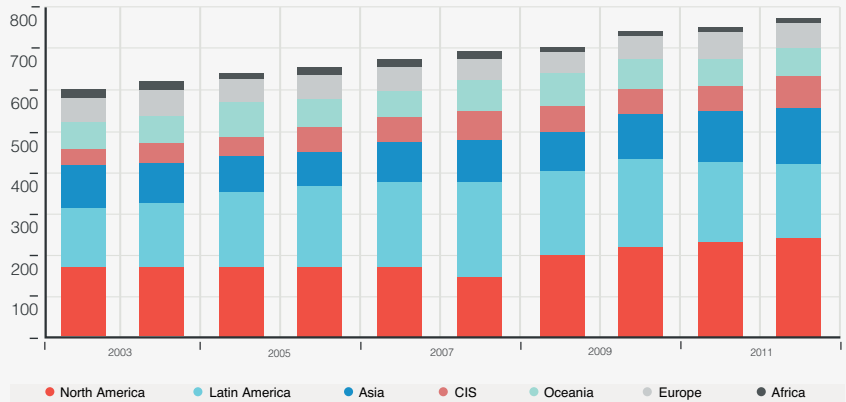
THOUSANDS USD PER KG



Global Silver Mine Production

Source: Silver Institute, Thomson Reuters GFMS

MILLION OUNCES



Silver Supply and Demand

Source: Silver Institute, Thomson Reuters GFMS

	2011	2012
Supply		
Mine Production	757.0	787.0
Net Government Sales	12.0	7.4
Old Silver Scrap	258.1	253.9
Producer Hedging	12.2	
Implied Net Disinvestment		
Total Supply	1 039.4	1 048.3
Demand		
Fabrication		
Industrial Applications	487.8	465.9
Photography	66.1	57.8
Jewelry	186.5	185.6
Silverware	48.3	44.9
Coins and Medals	118.3	92.7
Total Fabrication	907.1	846.8
Producer De-Hedging		41.5
Implied Net Investment	132.3	160.0
Total Demand	1 039.4	1 048.3
Silver Price (London USD/oz)	35.119	31.150

Over in Mexico, Endeavour Silver, led by Bradford Cooke, director and CEO, has successfully turned around the troubled El Cubo silver mine. "When we purchased El Cubo in 2012 the market looked like it was in a rebound and we believed El Cubo represented a tremendous opportunity to have a third core asset in the company," said Cooke.

Endeavour Silver, which had experience in re-viving troubled mines, set out to install a \$70 million capex program to rebuild the mine's plant, redo surface infrastructure and underground access in order to make the project more efficient. "In the second quarter of 2013, I am proud to say that our team delivered the reconstruction on time and under budget and that in the third quarter operations are now making positive cash flow," said Cooke.

One of the major issues addressed by Endeavour Silver with this capital expenditure program was the attitude of the workforce, a holdover from the management style and history of the mine. Within the last 12 months the company changed the safety culture, which has resulted in a 75% reduction in lost time accidents and an increase in production grades.

Endeavour Silver is not the only country concentrating in Mexico, a country that has repeatedly proved attractive for Vancouver's silver players. First Majestic Silver has five producing mines in the country and plan to produce 15 million silver equivalent oz in 2014 (including 13 million pure silver oz); by 2017, with two new operating mines, they hope to increase this to 20 million oz of annual silver production.

"After having left my previous company, First Quantum Minerals, in 2000, I identified a low in the metals market in 2002 and after analyzing different metals I determined that silver was one of the most interesting metals to invest in. I felt had very strongly about the supply-demand fundamentals of the metal. In addition, I viewed silver as a niche market, with very few companies involved in producing the metal. Being very familiar with Mexico, Mexico became the obvious choice for the company, given its silver rich history, the ease of travel and political stability of the country; not to mention the work ethic of the people. Similar accounting practices, legal structures and protection under the NAFTA agreement were also major benefits. I began to look at assets in 2002 and put together the early makings of our team in 2003 and the main assets came in between 2004 to 2006," explained Keith Neumeyer, president and CEO of First Majestic Silver Corp. •

BEAR CREEK MINING CORPORATION

TSX-V: BCM

Creating Value Through Advancement and Discovery Building a growth-oriented large-cap silver company in Peru

Corani ESIA approval received Sept 2013

CORANI ECONOMICS

- Proven and probable mineral reserves of 270 million ounces of silver, 3.1 billion lbs of lead and 1.7 billion lbs of zinc
- 13.4 M ozs Ag/yr for the first 5 years, 8 M opy for life of mine (20 years)
- Cash cost of -\$0.45/oz Ag for the first 5 years.

For more information, refer to the Feasibility Study available on the website

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INTERVIEW WITH

Andrew Swarthout

PRESIDENT, CEO AND DIRECTOR
BEAR CREEK MINING CORP.

In 2011 you completed a feasibility study at your Corani Project which pointed to proven and probable mineral reserves of 270 million oz of silver, 3.1 billion lb of lead and 1.7 billion lb of zinc. Could you provide our readers with an update on the status of this project?

In 2012 Bear Creek, with the assistance of AMEC, brought our feasibility study into an ESIA, which we completed and filed in December of that year. Currently, the company is now going through the comment process, with the Ministry of Energy and Mines as the principal lead. We are now in the process of responding to the Ministry's comments and we expect the final response to be filed within a week. (Note: The comments were officially filed on Aug 27, 2013.) Under this timeline, Bear Creek expects approval of the ESIA in the third quarter of 2013*, which will lead to the necessary construction and water licenses. Once the company receives this approval we will have a solid basis on which to look for funding. Currently, the Corani Project has been the object of very strong interest from buyers in the form of off-take agreements, given the large amount of high quality lead-silver concentrates. In addition, there are also a number of equipment suppliers which have offered debt financing with deferred payment. *Bear Creek announced ESIA approval on September 25, 2013.

As you mentioned, Bear Creek Mining is awaiting comments from the Ministry of Energy and Mines on your Corani Project. What are your thoughts on the regulatory process in Peru, given this experience?

The Corani experience has shown that if a mining company has a good technical study within its ESIA and a demonstrable social license there are no large impediments to per-

mit approvals under the current regulatory conditions. Having said this, issues in Peru revolve around companies not having the required elements for a strong social license in their area of operation. This is highly dependent on the area in which a mining company operates, how it behaves and what it has been able to accomplish in the social sphere.

Having the appropriate social license is an increasingly important facet of mine development in all of the major jurisdictions. Could you talk to your community involvement initiatives in the area of the Corani Project?

Bear Creek has made investments, to the tune of \$1 million, in a variety of social initiatives. This includes in the area of education and Bear Creek has helped to build and remodel a total of five schools. The company has also established welding and mechanic courses in order to prepare members of the community to obtain employment when our operation begins. Bear Creek has also established agreements with the surrounding communities to donate \$1.5 million/year to a foundation of local officials. This foundation includes Bear Creek as a non-voting member of the board, to help guide these communities in making smart investments for economic development. Our approach has been applauded by the Peruvian government, which has stated that our efforts should be emulated by other mining companies.

Bear Creek Mining also has five exploration projects in the company's portfolio. Are there plans to move any of these projects toward the development stage?

The company is looking to move forward with our Carito Gold Project and will be executing phase I drilling later on in the year. Carito was discovered by informal miners in late 2012 and it has high-grade gold min-

eralization structures exposed at the surface over a fairly extensive area. The formation, which is sandstone-quartzite, has very strong induced polarization (IP) anomalies, suggesting a substantially mineralized intrusion at shallow depth.

Given your experience as a Canadian company working overseas, which lessons do you have for Canadian companies looking to enter foreign jurisdictions?

Increasingly, mining companies must have more patience in terms of facing social issues. In some cases companies are now utilizing close to a third of their exploration budgets to this end. Early stage phase I drilling programs used to take anywhere between 30 and 90 days, they now take closer to six months to a year because of the social licensing required. Companies have to be aware of these issues and explain to shareholders why these processes are taking longer.

As a final word to our readers, where will Bear Creek Mining be when Global Business Reports returns in two to three years' time?

Bear Creek will continue to demonstrate its ability to deliver the social license required at our Santa Ana Project. In two to three years we will back at this project, either in the permitting or construction phase. At Corani we will have our permits and an articulated financing strategy. It is a very robust project, one which will produce 13 million oz of silver per year. Hopefully, the company will have one or two other discoveries from projects such as Carito. •



INTERVIEW WITH

Bradford Cooke

CHAIRMAN AND CEO
CANARC RESOURCE CORP.
DIRECTOR AND CEO
ENDEAVOUR SILVER CORP.

Canarc Resource is a growth-oriented gold exploration and mining company focused on discovering and developing gold deposits in North America. Could you provide a brief introduction to your company and its history?

Canarc Resource was founded in 1987 and was listed on the Vancouver stock exchange in 1988. We quickly became involved in a high-grade gold and silver discovery, Eskay Creek, in Northern British Columbia that did wonders for our stock and taught us about the business of managing listed companies. In 1990 we began looking for a new asset and acquired the New Polaris gold mine project, a historic high-grade underground gold mine in British Columbia. From 1994 to 1997 we aggressively explored the property and outlined a simple, thick, continuous, sheet-like high-grade vein resource in what we call the C-Veins. The resource extends over about a 500 m strike length to 500 m in depth and continues to be wide open at depth. Shortly after, along came Bre-X and washed away the company's ability to raise money and advance the project. The board chose to stop spending so as to not dilute shareholders and we focused on survival until 2003 when gold was clearly into a new bull market. From 2003 to 2007 we focused on exploring a project in the Republic of Suriname and from 2007 to 2008 we returned to infill drilling at New Polaris. Since the 2008 financial crisis Canarc's share price has been so low we lost the desire to raise money through equity financing. As a result, we have been and continue looking for partnerships to develop New Polaris and go after a second asset.

What sort of partner is Canarc looking to bring on to the New Polaris project and what is the company's strategy with regards to a second asset?

We are searching for a partner who has the horsepower needed to finance, build and op-

erate the New Polaris mine, one of the highest-grade gold resources ready for development in Western Canada. We have invested about \$29 million of our shareholders money since 1990, but going forward we would prefer a partnership rather than use the equity of our shareholders. Our second initiative is to acquire a more advanced or producing gold mine asset. Our management team is composed of builders and operators and we also have the financial contacts to do bigger deals. If we are able to consummate these plans, we would ideally do something similar to what Endeavour Silver Corp has done, though our emphasis would be on gold: acquire tired mines in historic districts that are struggling to survive, and bring the money and expertise needed to return them to profitability and expand them.

Turning to your second company Endeavour Silver, new forecasts to El Cubo include fast track mining expansion and increased silver production guidance. Could you provide us with an overview of these developments?

We purchased El Cubo in 2012 because we believed El Cubo represented a good opportunity to have a third core asset in the company. El Cubo was another troubled mine in a historic district that needed to be turned around. Following the acquisition, we completed a \$70 million capital expenditure program to rebuild the plant and redo surface infrastructure and underground access so that it would be more efficient. In the second quarter of 2013, I am proud to say that our team delivered the reconstruction on time and under budget and that in the third quarter operations are now making positive cash flow.

How has Endeavour Silver looked to overcome El Cubo's infamous history?

When we purchased this troubled mine, we knew the biggest issue was not underperfor-

mance, but rather the attitude of the workforce related to the previous owners, the management style and the history of the mine. While the mine had periods of outperformance, it has been a troubled mine off and on for many decades; most recently, it was losing money, production was falling and lost time accidents kept rising, all symptoms of a lack of care and management. We played to our strengths, our ability to recognize what the issues are and then address them. Within 12 months we changed the safety culture with a 75% reduction in lost time accidents, we increased the production grades and reduced the workforce and number of working spaces to make this a sustainable mine.

As a final word to our readers, when Global Business Reports returns in two to three years' time, what will be the topic of conversation for both companies?

For Endeavour, we envision moving from a mid-tier silver producer to a senior silver producer. We hope to be an industry leader in the silver mining industry and to set new standards in all aspects of our business. For Canarc, in three years' time we hope to accomplish our main goals of bringing in a new partner to help develop the New Polaris gold mine and then also be producing from a newly acquired asset. •

Copper

Supply of copper has risen significantly faster than demand in 2013, a trend which is expected to continue into next year, putting downward pressures on prices. The Chinese economy is seen as key to copper prices as the country consumes around 40% of global output. Though, GDP growth in the People's Republic is likely to slow further in the coming years, threatening to keep copper weak. Vancouver-based Tintina Resources is looking to make its way in the copper market, irrespective of Chinese growth projections. As Jerry Zieg, vice president exploration said: "The corporate strategy is to develop the Black Butte property by carrying out the

feasibility study, with production expected in late 2016 or early 2017."

Located in the State of Montana, Black Butte has more than 1 billion lb copper in the measured and indicated resource categories, found within the Johnny Lee upper and lower zones, plus the Lowry deposit. The average grade of resource on the property is more than 3% copper, while resources at the Johnny Lee upper and lower zones have averaged 3.6% copper. This should not overshadow the fact that the lower zone has seen in excess of 2 million mt at 6.4% copper. Zieg, a native of Montana, looks to uphold the company's commitment to "doing it right."

"Our open-door policy with the local community enables them to register any concerns and our transparency is greatly appreciated," he said.


Moving forward Tintina is planning an underground cut and fill mining operation on the Johnny Lee deposit that will produce about 3,300 mt/d of ore, for a mine life of 11 to 14 years.

Panoro Minerals, operating in Peru, is looking to the future as well. Panoro's drilling campaign this year indicated a continuity of the chalcocite high grade zone at its copper-gold-silver Cotabambas project. This theory was confirmed in a mineral resource estimate released in October, which increased copper and gold resources at the project by 40%. As it stands, Cotabambas has an indicated resource of 117.1 million mt at a grading of 0.42% copper, 0.23 g/mt gold, 2.74 g/mt silver and 0.001% molybdenum at a cutoff of 0.2% copper equivalent and inferred resource of 605.3 million mt at 0.3% copper, 0.17 g/mt gold, 2.33 g/mt silver and 0.002% molybdenum at a cutoff of 0.25% copper equivalent. The company's other property, the Antilla copper-molybdenum project, the company currently has an inferred resource of 154 million mt at grading of 0.47% copper and 0.009% molybdenum at a cutoff of 0.25% copper equivalent. "Panoro plans to update Antilla's resource estimate and commence a preliminary economic assessment later this year [in view] of completing the assessment during the first quarter of 2014," said president and CEO Luquman Shaheen.

Unlike the analysts quoted at the beginning of this section, Shaheen sees a bright future for copper projects, particularly after the predicted merger and acquisition storm. "At that point there will be the realization that there are a deficient number of new copper projects...in turn there will be a spike in copper prices and an active search to acquire copper projects," he said.

Panoro Minerals expects to be recognized for its Cotabambas project during this search. •

TINTINA RESOURCES



**Experience.
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Tintina Resources is a growth company focused on the exploration, development and mining of copper at our Black Butte Copper project in Montana, USA.

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E-mail: info@tintinaresources.com Website: www.tintinaresources.com



INTERVIEW WITH

Jerry Zieg

VICE PRESIDENT – EXPLORATION
TINTINA RESOURCES INC.

Can you give an introduction to Tintina Resources Inc, and how it came to obtain the Black Butte property?

Tintina Resources was formed from an idea while I was an exploration manager at NOVAGOLD Resources Inc. where we had generated some early stage exploration properties in Alaska. We believed that these properties would fare better in another company, ultimately resulting in the start of Tintina Resources. I am a native of Montana and was involved in the Black Butte copper discoveries while working with Cominco American Inc with joint venture partner BHP in 1985. In 2008 I was contacted by friends in Montana who owned the land where Black Butte is situated, which resulted in the Black Butte copper property being brought into the Tintina fold.

What average grade of copper have you found at Black Butte and can you provide from a geological overview of the project?

The average grade of resource found at Black Butte is over 3% copper, and the resources at the Johnny Lee upper and lower zones average 3.6% copper. The Johnny Lee lower zone is in excess of 2 million/mt at 6.4% copper. The combined Johnny Lee upper and lower zones plus the Lowry deposit total over 1 billion lbs copper in the measured and indicated resource categories. Tintina has focused entirely on upgrading previously discovered resources, and has yet to commence true exploration work. Copper deposits in the district formed as massive sulfides developed in an extensive sea floor hydrothermal vent field. This process covered a large area of the hydrothermal field. Historically, exploration in the district focused on a single massive sulfide stratigraphic horizon; now we know there are at least five of these. There are a considerable amount of additional copper targets and these

mineralized zones are scattered across 1 km of stratigraphy.

Tintina is planning an underground cut and fill mining operation on the Johnny Lee deposit that will produce about 3300 tonnes of ore per day, mining from both its upper and lower zones. We expect an 11- to 14-year mine life and creation of about 200 full time jobs. This should have a very positive impact on the local economy of White Sulphur Springs.

Can you give details of why Tintina filed an application with the Montana Department of Environmental Quality (DEQ) to amend its exploration license to allow for the construction of a 1,500-meter exploration decline at Black Butte?

Under an exploration licence in Montana there is a provision that allows for the construction of an exploration working into the mineral deposit for purposes of bulk sampling, underground drilling, and other work. The DEQ completed the environmental assessment, which went through a 45-day public comment period, with a public meeting in early August. This provided a useful exercise to gauge public support for our project. The response for the local community was very positive, with a nearly unanimous vote in favor and a statewide vote of two to one in favor.

What is encompassed in Tintina's commitment to "doing it right", in terms of community involvement and environmental stewardship?

Tintina's philosophy is 'doing it right from the start' and this begins with our commitment to safety, closely followed by our responsibility to the community of White Sulphur Springs. This is especially true from an employment perspective; it will be their mine to work in and Tintina's to manage. Our ob-

jective will be to draw as much of the workforce as possible from the local community and to train them up to standard. From an environmental standpoint, we are committed to meeting Montana state regulations and to thinking through our development, operation and closure plans with the objective of maintaining high water quality and local fisheries and minimizing our impact on local agricultural practices and recreational opportunities. We've already completely reclaimed nearly all exploration drill sites.

The local people have appreciated the efforts we have made to ensure that reclamation is carried out in the correct manner. Tintina's Black Butte mine will be an underground mine, ensuring a minimal footprint. Our open-door policy with the local community enables them to register any concerns and our transparency is greatly appreciated. A good example of our local initiatives is the open communication we have with a local fishing business on Sheep Creek, which has helped allay fears with regards to adverse effects on the nearby streams. It would be a massive boost to our company's image if a fishing business was thriving in close proximity to our mine.

When Global Business Reports returns in two to three years' time where will we find Tintina Resources and its Black Butte mine?

You will find the Black Butte mine in a state of readiness for production, providing we are able to maintain our funding. Our high-grade material will convey a positive story to the investment market and we will look to continue our strong relationship with local business and communities. •



INTERVIEW WITH

Luquman Shaheen

PRESIDENT AND CEO
PANORO MINERALS LTD

Panoro Minerals Ltd is a Canadian mineral exploration company, focused on exploring and advancing a portfolio of copper and copper-gold deposits in Peru. Could you provide our readers with an introduction to your company?

Panoro was founded in 1995 and went public in 2003. The company acquired its package of projects in south-central Peru, where it is now focused, in 2007. Out of the 13 projects in this package, two have been moved to an advanced exploration stage. This includes the Cotabambas copper-gold-silver project and the Antilla copper-molybdenum project. In 2008 the company drilled 10,000m at the Antilla project and in 2009 produced a NI43-101 technical report which included the 154.4 million tonne resource. In 2010 the company began work at Cotabambas and drilled until the middle of 2012, which in turn produced the current report with a 404 million mt resource. Since 2012 Panoro has continued to drill at Cotabambas and will soon roll these new results into an updated resource model.

In June of this year Panoro intersected 128.9 m, grading of 1.29% Cu, 0.96 g/mt Au and 9.4 g/mt Ag at Cotabambas. Please provide our readers with an overview of these results and how they fit into this project.

In addition to previous results released this year, Panoro's drilling has indicated a continuity of the chalcocite high grade zone of the deposit. The very high grades of over 1% Cu, 0.5 g/t Au and 5g/t Ag are generally contained within a zone of secondary enrichment, which is composed of chalcocite. Panoro's 2013 program includes infill drilling, in order to delineate this zone of secondary enrichment. Our resource estimate, which is due soon, will include a significant increase in the total tonnage and the high-

grade zone. The potential for this increase was also indicated by a number of high-grade intersects in primary copper mineralization, held in the host intrusive, underneath the aforementioned zone of secondary enrichment. These results lead us to the conclusion that there is a bigger deposit, which includes a larger high grade zone.

In January of this year Panoro recommenced exploration activities at the Antilla project, after the complete transfer of assets from its former joint venture partner. Could you provide our readers with an overview of this copper-molybdenum project?

The Antilla project is a 154 million mt deposit, with additional potential around the edges of the deposit and in the west block. At present, the company believes that Antilla could be an economically attractive mid-size copper project. This is due to the high grade zone being located at surface, with a very low strip ratio, water on site and nearby road and power infrastructure. Panoro plans to update Antilla's resource estimate and commence a preliminary economic assessment later this year and completing the assessment during the first quarter of 2014. In keeping to this timeline, Panoro has hired Tetra Tech to integrate the 2,200 m of drilling data into a new model, resource estimate and technical report. The company is also completing additional metallurgical testing.

Global Business Reports has met with a number of companies operating in Peru during this project and a reoccurring theme has been the need to comprehensively interact with Peruvian authorities. Which factors must be kept in consideration when operating in Peru?

In regards to the permitting and development of a mine in Peru there are two areas which

require focus. The first of which is regulatory permitting, through the Ministry of Energy and Mines and the Ministry of Environment. The required procedures are very well documented, as Peru has a very strong, modern and established regulatory environment. The second area is community relations, which requires both more finesse and farsightedness. The interaction with indigenous Peruvian communities must begin even before exploration stage. Mining companies must keep in mind the factors specific to the local communities with which they interact. This includes socio-economic, historical and cultural legacies. To fully understand the needs and expectations of a local community it is necessary to employ a Peruvian team from the area and Panoro is focused on this objective. Our company prides itself on the number of Peruvians on our team who represent the key to our successful community involvement initiatives.

As a final word to our readers, when Global Business Reports returns in two to three years' time what will be the topics of conversation with Panoro Minerals?

In two to three years' time the mining industry will be witness to a multitude of mergers and acquisitions. At that point there will be the realization that there are a deficient number of new copper projects in the pipeline. In turn, there will be a spike in copper prices and an active search to acquire copper projects. At this point Panoro expects to be recognized for its Cotabambas project. Of particular importance in this regard is the Peruvian government's national strategic goal to double its copper production in the near future. •

INTERVIEW WITH

Dean Pekeski

EXECUTIVE VICE PRESIDENT
WESTERN POTASH CORP.



Could you provide an overview of Western Potash Corp. and how you have shifted from exploration to focusing on the development of your Milestone property?

Western Potash Corp. was formed in 2007 and was taken public in 2008. The Company set out to explore for potash resources in Western Canada and shifted its exploration efforts to the province of Saskatchewan in 2009. In the middle of that year the company discovered thick sequences of potash at our Milestone property, 22 miles south-east of Regina. Western Potash quickly advanced this project over the subsequent two years and completed a feasibility study in 2012. The company completed a full environmental baseline study and a community engagement program which culminated in March 2013 with the receipt of our environmental approval from the provincial government. Western Potash is now currently at the construction stage and is looking to acquire the \$2.9 billion in funding needed to build our Milestone project.

Recently, Russian fertilizer company Uralkali predicted that potash prices could fall below \$300/mt. Have these predictions had an adverse impact on your feasibility study completed last December?

Western Potash took into consideration price sensitivity in our feasibility study, so these predictions do not largely affect the results. The company worked hard to keep our costs low so that we could operate at lower potash prices. Western Potash also spent a lot of time looking at strategic partnerships with global companies located in demand driving countries. We have found that group with China Blue Chemicals Ltd and Guoxin Investment Corporation. Not only does China Blue Chemicals have strong ties to significant state-owned banks in China, it is a distributor of fertilizer with a large network. We feel that this relationship will provide a lot of support for the project once it is producing

and it will allow Milestone to exist even at lower potash prices.

As mentioned, Western Potash has taken into consideration lower potash prices with its Milestone project. Where do you see potash prices going in the short to medium term?

There is a lot of uncertainty in the potash market and I do not believe that anyone can predict price fluctuations. That being said, it is fair to say that the days of \$1,000/mt of potash are no more and that the market will not see that sort of volatility in the future. Only over the last seven to eight years has there been tremendous volatility in potash pricing, linked to stronger global demand. Though, global demand drivers will remain strong and China, India and Brazil will continue to be robust markets. This is particularly true with the case of China, which views the commodity as a long term investment that is crucial to its overarching economic strategy. Western Potash is well placed to deal with price decreases, particularly in comparison to our competitors who have significantly higher operational costs. •

Potash

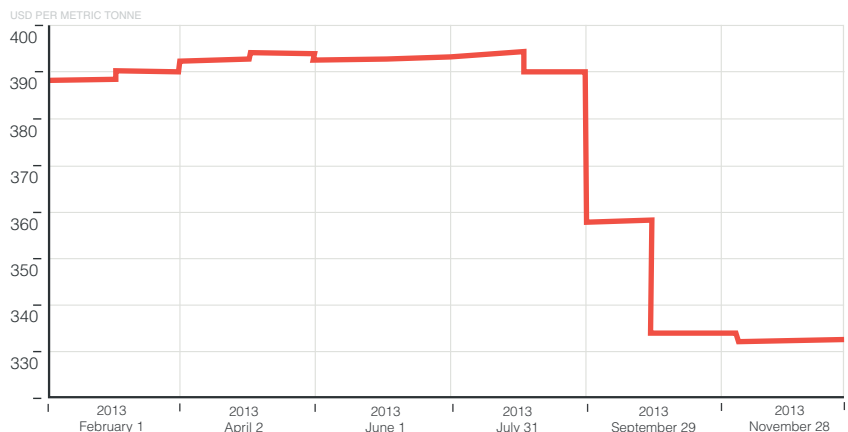
Uncertainty has plagued the potash market since July of this year. The breakup of Belarus Potash, a joint venture between rival's Russian OAO Uralkali and Belarussian Belaruskali dismantled one of the two marketing alliances to sell potash to the world and in turn sent prices of the mineral, which is used to make fertilizer, tumbling and big buyers are now waiting to see how far the price for potash will fall before signing any contracts.

A predicted fall in potash prices was on the mind of Western Potash Corp's executive vice president, Dean Pekeski. The company is currently at the construction stage at its Milestone property, southeast of Regina, Saskatchewan, and is looking to acquire the \$2.9 billion needed to develop the mine. "Western Potash Corp. took into consideration price sensitivity in our feasibility study...the company worked hard to keep our costs low so that we could operate at lower potash prices," said Pekeski.

The company also actively searched for a strategic partner, having concluded an agreement with ChinaBlue Chemicals and Guoxin Investment for \$32 million. ChinaBlue Chemicals has both strong ties to state-owned banks in China and is a distributor of fertilizer. The company hopes that with the integration of these partners into various working groups Western Potash Corp. will be able to secure the required financing and in turn establish an operational relationship once the project enters development. •

Potash Price

Source: infomine.com



Lithium Jay Chmelauskas



PRESIDENT AND CEO
WESTERN LITHIUM USA CORP.

In October, Research and Markets released its Global Lithium Market 2012-2016 report which forecasts that the global lithium market will grow at a compound annual growth rate of 9.74% over the 2012 to 2016 period.

Key to this demand is the use of lithium in Li-ion batteries, predominantly to store power for electric cars, something Jay Chmelauskas, president and CEO of Western Lithium USA, is looking to take advantage of with its Kings Valley project in Nevada. "Compared to a few years ago, electric vehicles are much less speculative and consumers have shown strong satisfaction with the technology. With continued support for an electric car market, in the future, our lithium project will be in the right space to become financed for lithium production," he said.

Taking note of a current glut in the lithium space the company has decided to focus on specialty clay utilized in directional drilling for oil and gas that is also present at its Kings Valley property. "When we put hectorite clay through the organoclay process plant we create a hectorite organoclay...that has thermal stability characteristics, which enables it to be used at greater depths," said Chmelauskas. •

Could you provide a brief introduction to Western Lithium's Kings Valley project?

In regard to the Kings Valley project, Western Lithium released a pre-feasibility study in 2012 that demonstrated strong economics for the lithium market. However, at that time we also recognized that there were already a few projects that were fully financed in the lithium space and decided that our best strategy was to focus on our clay business. For the last year we have concentrated our efforts on the necessary permitting and engineering for this project. We expect to have a clay plant built by the beginning of 2014 and plan to become a producer of this specialty clay product.

What potential do you see for your clay products and how are they utilized in the drilling process?

New sources of oil and gas deposits, such as shale in the US or deep offshore deposits off of the Gulf of Mexico, Brazil and Egypt, are using a directional drilling technology that requires a special type of drilling mud, which is organoclay. Western Lithium is in the process of building an organoclay plant in Nevada to service this market. In addition to an organoclay plant we also have our own hectorite clay deposit. When we put hectorite clay through the organoclay process plant, we create a hectorite

organoclay – Hectatone™ - that has thermal stability characteristics, which enables it to be used at a greater depths. We have created a niche product for application in the fracking and offshore industries.

How do geopolitical issues in the United States and elsewhere around the world play into your business strategy for clay?

The US has recognized over the last five years that these new sources of natural gas and oil have vastly improved the country's ability to generate its own energy. The US now produces 30% of its natural gas from shale, which was not the case 10 years ago. The US this year will be the number one oil producer in world, surpassing Russia, and has decreased oil imports by half over the last eight years thanks to new technology. This has put the US in an advantageous position in terms of access to cheaper energy. The rest of the world also recognizes that there are other shale resources and offshore oil and gas reserves that can be accessed with new directional drilling technology. China has demonstrated that it has two times the shale reserves as the US and in the last two years has started to pursue joint ventures with major international oil and gas companies. We have also seen developments in a number of other countries, providing a strong potential on a global scale. •

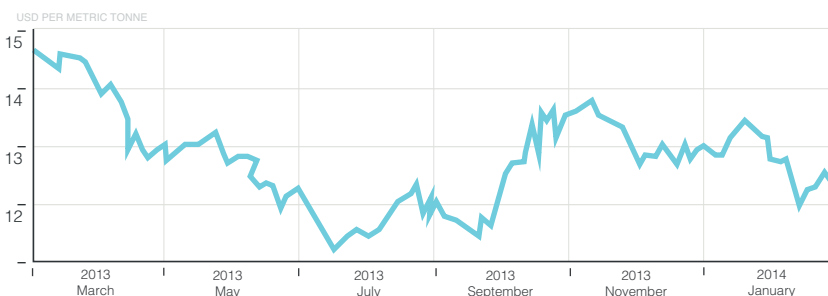
Global Lithium Reserves

Source: signumBOX

Bolivia	34%
Chile	31%
China	13%
Argentina	8%
USA	6%
Australia	3%
Others	5%

Lithium Price

Source: ycharts.com



INTERVIEW WITH

Ross McElroy



PRESIDENT, COO AND DIRECTOR
FISSION URANIUM CORP.

Fission Uranium Corp. is a relatively young exploration company, having been incorporated in February of last year. Can you provide an introduction to your company and how this management team is looking to make its mark on the industry?

Fission Uranium has a major high-grade, shallow depth uranium discovery in Canada's Athabasca Basin - home to the world's highest uranium grades. The company was incorporated early 2013 and began trading publically at the end of April. It evolved as a spinout of Fission Energy Corporation after Denison Mines Corporation acquired the company and its properties on the eastern side of the Athabasca Basin, including the Waterbury Lake project. The spinout, Fission Uranium, held onto the properties on the western side of the basin and Fission Energy's Peruvian asset. The strategy behind retaining properties in the Athabasca Basin came with the discovery at Fission's Patterson Lake South (PLS) project. Fission Uranium retained the same management and technical teams from Fission Energy and in December 2013, the company took over its JV partner Alpha Minerals to acquire 100% control of the PLS asset and spun out Fission 3.0 Corp. with all of its assets aside from PLS.

At Patterson Lake South (PLS) Fission Uranium has found high-grade mineralization at a shallow level, with the innovative use of a discov-

ery method that has proven to be extremely accurate. Could you provide an overview of this project and the discovery method?

As mentioned, the uranium discovery at PLS is high grade and extremely shallow. Mineralization begins at 50 m below the surface and continues to a depth of 300 m. It is quite a sizable find and the company has outlined mineralization that is continuous over a 1.78 km strike length. It makes PLS one of the bigger deposits in the Athabasca Basin and the shallowest find there in 30 years. It is one of a kind; there are no other high grade, large resource, open pit uranium mines in the world. With regards to the discovery technic, Fission Uranium ran a radon survey in the winter, under a frozen lake and sampled radon gas in this environment. The company knew the fault zone and corridor and in turn augured our instrument to sample the radon gas on the 1.78 km trend. The areas discovered became instant drill targets and the company was fortunate to hit high-grade mineralization across this trend at a 100% success rate.

As a final word to our readers, when Global Business Reports returns to British Columbia in two to three years' time what will be the topics of discussion with Fission Uranium?

I predict that Fission and the PLS project will be acquired in one to two years. When Global Business Reports returns you will see increased success on our Fission 3.0 Corp. projects as well. •

Uranium

The price of uranium has plunged 40% since March 2011 when a tsunami wrecked Japan's Fukushima nuclear plant, causing mass contamination in the area. While Japan shut down all of its 50 reactors for a safety check, this Asian nation is set to restart some of its reactors in 2014, which will subsequently boost demand for nuclear fuel.

Looking to take advantage of this upswing in uranium prices is Fission Uranium. This company has employed a radon survey and its patent pending SPI high resolution magnetic and radiometric airborne survey at its Patterson Lake South (PLS) project.

Utilizing this technology the company has had a 100% success rate across a 1.78 km trend at the project, allowing for instant drill targets. "The uranium discovery at PLS is high grade and extremely shallow. Mineralization begins at 50 m below the surface and continues to a depth of 300 m," said Ross McElroy, president, COO and director.

The company has acquired its partner Alpha Minerals, to become the sole owner of the PLS project. After the acquisition the company has taken its remaining assets and spun them out into a new company known as Fission 3.0 Corp. •

Uranium Production by Country (2012)

Source: World Nuclear Association

COUNTRY	MT
Australia	6,991
Brazil	231
Canada	8,999
China	1,500

Czech Republic	228
France	3
Germany	50
India	385
Kazakhstan	21,317
Malawi	1,101
Namibia	4,495
Niger	4,667

Pakistan	45
Romania	90
Russia	2,872
South Africa	465
Ukraine	960
USA	1,596
Uzbekistan	3,000
Total	58,394

Canadian Juniors

Looking to M&A and foreign deals

At the end of July 2013 the world's hub of mining juniors recorded its sunniest month in the city's 127-year history. While the 16 days of straight sunshine was a lengthy record for the city it pales in comparison to the amount of time Vancouver-based juniors have been feeling the heat in their scramble for financing. This last 18-month period has been extremely difficult for the mining industry and has weighed especially heavily on junior players. External and internal pressures on companies have led many to question if capital projects can be delivered and if they can provide a substantial return on investment. In response, shareholders seem unwilling to finance the majority of mining projects. Debt financing continues to remain

tight and, for some, it has seemed to have almost completely vanished.

Given the current state of the industry some analysts and industry watchers have now called for a culling of the TSX Venture Exchange, which along with the TSX was utilized for 70% of the equity capital raised globally for mining companies in 2012. Others believe that hundreds of these companies will disappear in the immediate future, with capital constraints taking their fatal toll. Many have reiterated the fact that there are roughly 600 junior mining companies listed on the TSX Venture Exchange with less than \$200,000 in the bank; companies that will either be bought up, enter into junior-to-junior deals or close their doors. Given current

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fiscal constraints, a number of professional service companies had forecasted 2013 as the year of significantly increased mergers and acquisitions (M&A) activity.

Instead, M&A have proven difficult for many juniors in the first quarter of 2013 and the industry has yet to have the blockbuster year that some had predicted. Though it is interesting to note that a steady upswing in M&A activity may be in the works. Global Business Reports (GBR) recently sat down with Alan Hutchison, a partner at the newly established international firm Dentons Canada LLP. Hutchison pointed out that while M&A activity has yet to reach predicted levels it has not been for a lack of trying. According to Hutchison, over the last six months there has



Source: Shutterstock

been a variety of M&A discussions, though many have been stopped by “a general conservatism in the market and a risk adverse mantra” in the industry. On the junior-to-junior side, the main impediment to deals has been the dilution faced by shareholders. Even with these impediments to market consolidation Hutchison believes that given the aging demographics of the mining industry, “younger management teams who can offer succession planning will be able to kick start M&A discussions and attract new capital”.

It seems as if this and other processes are starting to push M&A activity in the mining sector. KPMG’s most recent Mining M&A Quarterly Newsletter pointed to a few interesting facts with regards first quarter Canadian transactions. In the first quarter of this year M&A transactions came in at a value of \$5.3 billion CAD, short of the \$9 billion CAD recorded for the fourth quarter of 2012. While this is a substantial drop it is important to note that the end of 2012 saw the \$5.1 billion Inmet Corporation-First Quantum Minerals Ltd deal, which skewed the numbers in the fourth quarter’s favor. Leaving this deal

aside, when the two numbers are compared the value of M&A activity for the first quarter of this year rose 34%. Gold companies led the way in this heightened activity and accounted for 64% of deal value and 58% of deal volume. The 14 gold transactions of last quarter accounted for \$3.4 billion compared to \$3.1 billion in the fourth quarter of 2012; a small but significant uptrend that may point to eventual heightened M&A activity.

With calls for a consolidation of the market and the large number of companies that lacked the capital required to develop their properties some juniors had adopted a strategy of lying low until capital becomes available. With this slight upswing in M&A activity, as highlighted by KPMG, this will present an increasingly attractive option for risk-adverse management teams and may allow these companies to survive in the medium term. If these companies survive the constrained fiscal environment they will be well placed to compete over available capital. The problem with such a strategy, however, is that these management teams will not have positioned themselves to take advantage of

increased commodity prices and will in turn have to scramble to develop their properties. Other companies are aware of the potential downfalls of such a strategy and have looked to less traditional methods meant to circumvent constrained debt markets and lessen reliance on risk adverse stockholders. Joint ventures and off-take agreements with Asian buyers has been one such route recently adopted by mining companies. Vancouver-based junior Western Potash Corp. recently announced an almost \$32 million strategic investment deal with China Blue Chemicals Ltd and GUOXIN International Investment Corporation Ltd. Through a joint venture company CBC (Canada) Holding Corporation, these two companies will have a 19.9% stake in Western Potash and will also be highly involved at both the executive and managerial levels in return for supplying much needed capital. The abovementioned upsurge in M&A transactions in Canada and the active seeking of Asian investment by Vancouver-based companies actively signal that junior financing may be slowly be increasing. •

PANORO

MINERALS LTD

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Support in Difficult Times: Greater Vancouver's Service Sector

"What mining companies really want to do in the near future is optimize existing facilities while there is limited capital available. There are many ways to define the bottlenecks and make processes more efficient. CWA can help clients identify and correct these issues and thereby bring down costs. The clients that we work with have not necessarily over the last several years built noneconomic facilities from an operational cost standpoint, however efficiency might not have been a prime focus during a time when the objective was to get facilities into operation to take advantage of great prices. Now is the time for companies to take a look at the facilities that were put in place a few years ago and see where they can be made more efficient and money can be saved."

- Steven Yee, Vice President, Engineering & Development,
CWA Engineers Inc.





Greater Vancouver's Service Companies

The backbone of a global industry

Vancouver is a mining and exploration hub that boasts a long history. Its perceived strength may be the fleeting junior companies who exist for a single discovery before they are bought – although this characterization is arguably no longer true, with many long-lasting producers growing out of the city – but the service industry that supports Vancouver companies has always been more established.

A wealth of service companies have sprouted up across the Greater Vancouver area. Front-end service providers in the realm of engineering, environmental consulting and employment, among others, work tirelessly to improve the efficiency of this global mining hub. Estimates put the number of companies directly related to the mining industry at 2,500, a statistic which has surely been adversely affected by the global economic downturn and low commodity prices. While these companies provide a host of different services to the industry, they all agree on one simple fact; Vancouver is an important place in which to engage with domestic and international clients. “Vancouver is a city with a strong history of mining and success in the industry. To understand mining, no matter where in the world, it is important to have a presence in this city,” said Dennis Maljevac, branch manager at GE Capital Solutions (Canada).

Low commodity prices and the overarching economic downturn have created two recent trends in capital raising according to Maljevac: “First of all, companies which traditionally raised capital in the high-yield notes or project financing markets are now looking for new sources of capital... increasing the demand for GE Capital’s services and creative solutions.”

The second trend, according to Maljevac, is that as commodity prices have fallen, min-



ing companies have an increased focus on lowering their production costs. Vancouver's support industry has sought to help its clients to do so across the various facets of exploration, development and production.

Engineering companies have been among the most adversely affected by the economic downturn and low commodity prices. In response, engineering firms have looked to help their clients increase the efficiency of mines. "This year we have seen good projects delayed while other junior companies continue to face funding issues," said Greg Smyth, senior project manager at Knight Piésold.

The result has been that companies have focused on more challenging deposits, in terms of land claims and regulatory framework, according to Smyth. In order to support these companies, engineers at Knight Piésold have focused on efficiency. In order to help its mining clients with their overseas project Knight Piésold has strived to be "local but global, small but big", according to Smyth, relying upon local knowledge in specific jurisdictions, taking into consideration factors such as regulation, climate and fauna, all of which affect the mine design process. Hatch, the global multidisciplinary consul-

tancy, has seen a similar trend. "Big mining companies have had infrastructure and other challenges that have resulted in fewer new projects with more of a focus on optimizing existing operations," said Gavin Ritson, director of global mineral processing.

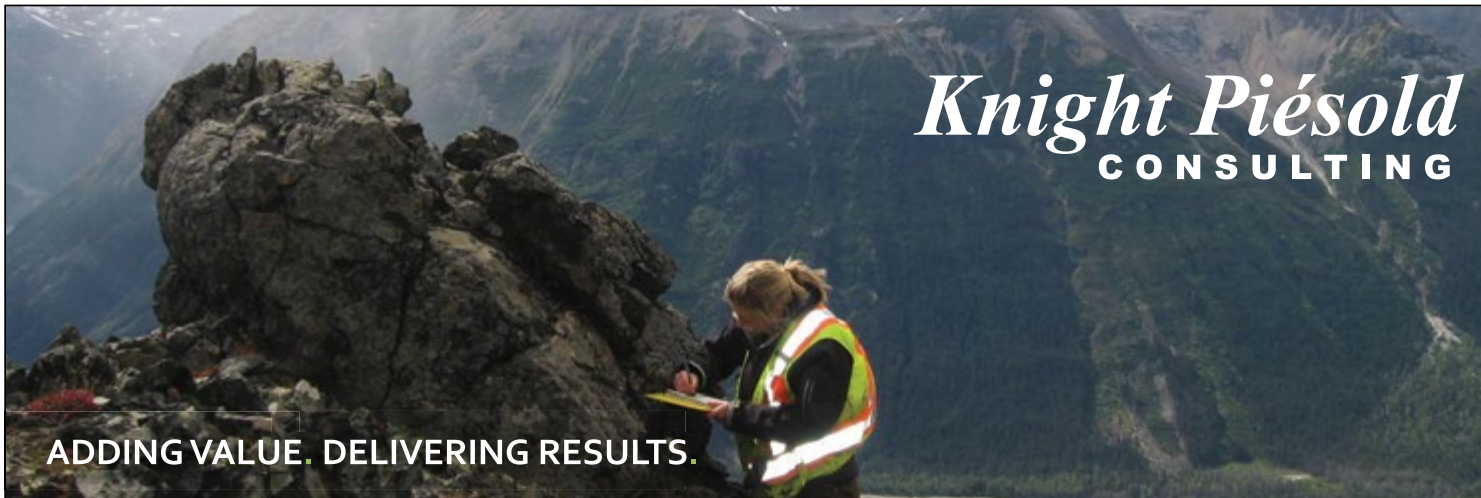
According to Ritson the service industry has now changed its approach, turning its attention to supporting operations where throughput and efficiency improvements are helping to maintain cash flow.

Other companies have continued to focus on their core specialties, while maintaining and expanding newer offerings. To make up for a downturn in demand for geographic information systems (GIS) software by exploration companies, McElhanney Consulting Services' mapping division has turned its attention to 3D terrain modeling, used to build accurate mine plans. "Our customers have either been currently producing mines or well-funded projects that are in the pre-feasibility stage," said Dan Tresa, branch manager for mapping.

The mapping of projects for reclamation has also seen a strong upturn for McElhanney, which completed three last year and is currently looking into another. Building upon the 103-year history of the company, McEl-

hanney established a newer environmental branch in 2000. Ross Murray, division manager for environmental and water resources, is in part guiding this teenaged section of McElhanney, carving out a place among the more established industry players. "Moving forward, our goal is to have a local environmental professional in each office, while ensuring that the entire spectrum of environmental services is available to clients at each of these local branches," said Murray.

Like the traditional engineering and mapping services provided by the company, Murray looks to have a strong presence of environmental staff across western Canada. •



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INTERVIEW WITH

Greg Smyth

SENIOR PROJECT MANAGER
KNIGHT PIÉSOLD LTD

Knicht Piésold was established in South Africa in 1931 and has grown to be an international company with 30 offices in 15 countries. Could you please provide our readers with an introduction to your company?

We have 900 employees globally and are very active in the mining sector, but work in power, water and other sectors as well. Knight Piésold also has a strong environmental services group supporting each sector. Our company is well known for dam construction and is also involved in green power for mining projects.

You recently gave a presentation that included a focus on powering mine sites in remote locations. How could such initiatives be utilized in British Columbia?

Diesel fuel is most commonly used at remote mine sites and is costly to both set up and run. Both in Canada and in the developing world there are opportunities to generate energy from local sources, from rivers to wind power. This can provide cost savings when compared with diesel power. As the energy used by remote communities is relatively small in comparison to a mine, power from these sources can be utilized by the community during operation and after the mine closes.

The 2008 economic crisis and lower commodity prices has caused the mining industry to reduce its costs. How has Knight Piésold structured its services as a result to save customers money?

The 2008 downturn fed into a lack of demand in 2009, which was followed by a period of recovery in 2011 and 2012. This year we have seen good projects delayed while other junior companies continue to face funding issues. Soft commodity prices continue to impede the raising of capital, so

the company has shifted its focus to robust projects. Certain base metals, such as copper, still have a strong outlook thanks to growth in China. Though, more of the easily extractable base metal deposits have been exploited. This has resulted in companies focusing on more challenging deposits, in terms of land claims and regulatory framework. Engineers have been focused on increasing the efficiency of mines, which can be ten times more cost effective in British Columbia, given the aforementioned issues.

Knicht Piésold strives to be “local but global, small but big”. How important is it to have this global network and what role does Vancouver play?

Local knowledge is key to success in any mining jurisdiction. Factors such as regulation, climate and fauna affect the mine design process. Our company has various locations around the world staffed with individuals who have built their careers by developing strong local knowledge. Vancouver is home to a very large hub of mining talent for the company, staff which can work around the world and here in British Columbia. Compared to our competitors we have fewer offices and this allows for a consistency in culture and service.

Knicht Piésold was rated one of the top employers for young people in 2013 and one of Canada’s top employers in 2012. How has the company managed to attract and retain young talented individuals?

We want the best people to work for Knight Piésold and for them to be passionate about their work. A career with Knight Piésold is highly attractive and allows for a number of travel opportunities to diverse locations. There are also profit sharing frameworks, comprehensive benefit packages, pension

and leave of absence options. Another factor is our frequent social events and the athletic lifestyle adopted by our office, reflecting the outdoor nature of our work.

Given your global reach and innovative mantra, where will we find Knight Piésold when Global Business Reports returns to Vancouver in two to three years?

Our workforce has been steadily growing and will continue to do so, with a focus on young and talented individuals. We are constantly looking to diversify within our sector by interacting with junior, mid-tier and major mining companies. Moving forward, Knight Piésold will work with every size of mining company to ensure that they are provided with the best engineering and environmental services. •



INTERVIEW WITH

Gavin Ritson

DIRECTOR - GLOBAL MINERAL PROCESSING
HATCH LTD

Can you please provide an introduction to Hatch Ltd, and how it has evolved over its 80-year history?

Hatch began in the furnace industry over 50 years ago, and metals have always been the center of the company's business. Over the last few years we have diversified into two additional principal sectors. Our business is now focussed around metals (which comprises approximately 50% of our business); energy and infrastructure. Our head office is in Mississauga and our major centers include: Johannesburg, Santiago, Montreal, Perth and Brisbane.

How does this global network benefit Hatch and what is the role of the Vancouver office?

Vancouver is the center of excellence for mineral processing. Within the three business sectors we have different business units, including non-ferrous, mining and mineral processing. Within Hatch mineral processing covers comminution, flotation and gold leaching. Our Vancouver location places Hatch in the mining hub for junior exploration companies that have world-wide projects.

Can you please provide an overview of the services you provide in the processing field?

Our involvement with processing starts at the beginning of a project. Hatch develops mine plans, manages test work programs using drill data and using skills in geometallurgy and metallurgy. We have a well developed front end loading process which covers scoping studies, pre-feasibility, feasibility and detailed engineering and construction. Once a project is built we provide commissioning expertise and ongoing support. To compliment the core skills, there are a number of specialist skills including environmental services, water management and tailings.

How has Hatch been affected by and responded to the global economic downturn and low

commodity prices?

Last year many of the megaprojects have had problems. Big mining companies have had infrastructure and other challenges that have resulted in fewer new projects with more of a focus on optimising existing operations. The service industry has responded by turning its attention to supporting operations where throughput and efficiency improvements are helping to maintain cash flow.

Do you have an example of a project in British Columbia which you believe best underlines the professionalism and innovation of Hatch's personnel?

Although not in British Columbia, Hatch designed the roaster for Barrick's Goldstrike Complex located on the Carlin Trend in Nevada. Hatch has been a tier one supplier for Barrick Gold over many years and received a strong commendation for the project and the short time it took to commission.

Does the statement by Greg Fauquier, "Clients across the globe are beginning to realize there is a world-wide shortage of high quality engineering capacity." still hold true?

Locally, many of the good skills, especially in processing, are being drawn into the junior mining companies, and only a limited number of people are qualifying and gaining experience. As an engineering company, it is often difficult to compete for these resources. I think Greg's statement that globally there is a shortage of high quality engineering skills is still true today. To overcome this problem we have structured our company to draw on specialist expertise from any of our global locations as required.

How has Hatch sought to attract, retain and train individuals to provide its service offering to clients?

Hatch has a very good relationship with uni-

versities and brings in young graduates on an on-going basis. With a slowing in the market finding good people in Canada is not quite as difficult as it was in the heated market. Our long-term solution is focused around our graduate scheme and mentorship program.

What trends has Hatch seen with regards to its global service offerings and which geographic area has been the main source of demand?

Over the last five years Hatch has been very strong in North and South America. Our office in Santiago has grown substantially and now boasts over 1,000 employees. The company's offices in Brazil and Peru are also showing encouraging signs of growth and Hatch completed two major projects in Colombia last year. Looking forward, Africa, Europe and Russia are also focus areas. One of Hatch's biggest projects in 2012 was Kinross Gold's Tasiast project in Mauritania, Africa. Our company has proven its ability to work in areas of substantial climate diversity from extreme hot and dry conditions in the desert to the bitter cold of Canada's north.

When Global Business Reports returns in two to three years' time, what will be the topic of conversation with Hatch and the changes that have occurred in the processing-field?

The biggest topic of conversation within the mining and mineral processing field will be improvements in energy usage. In comminution carbon dioxide emissions and the cost of power are big concerns, and the environmentally conscious development of solutions to these will continue to be an industry focus. Hatch is currently involved with the Canadian Mining Innovation Council (CMIC) where collaboratively the industry is focussed on finding methods to implement grinding solutions that are more efficient and cost-effective. From a technical viewpoint his is the Holy Grail for both mining and service companies. •

Integrating Mine Design and Environmental Studies



By Leon C. Botham, MSCE, P.Eng., Vice President Mining,
McElhanney Consulting Services Ltd

The development of any new mining operation, whether in Canada or around the globe, is an expensive and time consuming process. It is not uncommon for the process to continue for more than a decade from initial resource discovery, through exploration, environmental and social impact assessment (ESIA) and design, permitting, and finally construction.

To be successful, a proponent must navigate an ever changing and complex path starting from the initial discovery and early exploration. Regardless of the project location, the proponent must be aware of potentially changing political climate, aboriginal traditional uses, local community concerns, and an ever changing regulatory regime (for example, the recent changes to the Fisheries Act and the Canadian Environmental Assessment Act in Canada), not to mention the technical and economic issues of developing a new mining operation.

With all mining projects, the initial contact between the project and local communities occurs at the exploration stage. Actions taken early on by the proponent (or the exploration company if they are not the proponent) can have positive implications for the project, or give a negative impression of the project from the start that will linger throughout the process.

In an attempt to reduce the timelines for project development, an integrated approach to exploration, environmental and social baseline studies, ESIA, design and permitting can be developed. Getting an early start on the baseline studies provides the proponent an opportunity to gain a better understanding of the true baseline conditions for a project. This will help to provide an early indication of significant issues and will assist an integrated project team to design the project in manner that minimizes potential impacts.

The environmental baseline studies should include aboriginal and First Nations consulta-

tion, community consultation, and regulatory consultation. Early consultation provides all stakeholders an opportunity to gain an understanding of what the project will likely entail, and also provides an opportunity to identify and address issues related to cultural resources, traditional land uses and sensitive habitat within the project area. By gaining this information early on, the proponent can hopefully design the project to avoid potential conflicts with areas of significance, or at the very least, design measures into the project to mitigate against these potential impacts.

Often times, the design of project infrastructure will proceed totally independently of baseline studies and the ESIA process. Without good integration of project design and ESIA there is significant risk that the design may proceed without knowledge of the areas of significance. As a result, project components may be designed in a manner that would result in significant avoidable impacts. This often results in redesign late in the project development, in order reduce impacts and gain regulatory acceptance. This can have significant negative impacts on both project costs and timing or achievement of regulatory approval. Developing an integrated engineering and ESIA team early in the project development process (i.e., prefeasibility), can result in a more efficient design process, reduce environmental and social impacts, and yield a more efficient regulatory approval process.

Waste management is a critical component of the overall mining project. The tailings management facility and in many cases, mine waste rock piles, will have the largest footprint and area of disturbance of all project infrastructure. These will be permanent features on the landscape, remaining long after closure and decommissioning of a mine. These facilities can represent the single largest environmental liability and potentially the largest impact of

any mining operation. They must be designed to provide safe and environmentally acceptable containment of the remaining waste material in the long term after mine closure. By having a good understanding of the project constraints at an early stage, a suitable site can be located for safe disposal of the mine waste materials, while also addressing issues related to environmental protection, avoidance of cultural resources and other issues which may arise.

Integration of engineering and environmental components of a project at an early stage has significant benefits for any mining development. Compiling an integrated team, led by a project manager who has the relevant experience and understanding of issues can result in significant improvements throughout the project lifecycle. *

Leon C. Botham, M.S.C.E., P.Eng. is Vice President Mining and Principal Geotechnical Engineer with McElhanney Consulting Services Ltd. He has close to 25 years specializing in the field of Mine Waste Management and the design and construction of other mine infrastructure. Mr. Botham's experience includes design of mine waste management facilities around the globe. He has extensive management experience and is a proven team builder who has directed multi-disciplinary teams of engineers, scientists and social scientists to meet the diverse needs of clients. Mr. Botham has been an invited speaker at conferences on topics as diverse as Mine Closure, Dam Safety, Environmental Impact Assessment, Corporate Social Responsibility and Sustainable Development.

McElhanney is Canada's oldest surveying, mapping and engineering firm. Founded in Vancouver in 1910, the company has over 500 professionals and support staff providing services in an expanding range of related services that now includes geotechnical engineering, environmental services, materials testing, landscape architecture and urban planning. The firm has over 100 years of success in award-winning projects throughout Canada, the United States, and more than 70 other countries worldwide. These include the design of the Sea-to-Sky Highway linking Vancouver to Whistler for the 2010 Winter Olympic Games, the feasibility studies for the expansion of a gold mine in Russia, and the archaeological mapping to discover 1200 year-old temples in the Cambodian jungle that rewrote the history of the Khmer Empire.

INTERVIEW WITH

Dan Tresa & Ross Murray

DT: BRANCH MANAGER—MAPPING
RM: DIVISION MANAGER—ENVIRONMENTAL AND WATER RESOURCES
MCELHANNEY CONSULTING SERVICES LTD

Can you provide an overview of McElhanney Consulting Services?

DT: McElhanney Consulting Services Ltd has established itself as a provider of customized services to the mining industry. Our multi-disciplinary team of specialists and professionals ensure that we meet the individual needs of our clients. In regards to mining and exploration, McElhanney had a beneficial?? bumper year in 2012, with a number of projects in the sector. McElhanney is also a recognized reseller of geographical information system (GIS) software that is utilized by exploration companies during the initial stages of their project development. With the mining industry distressed by low commodity prices, there was a significant decline in our sales in 2013. Despite the downswing in GIS software sales, we are sufficiently diversified and committed to provide solutions to the mining industry as one of our key focus areas.

Which factors and issues must be kept in mind when working through the regulatory process?

RM: The interaction with a client must be comprehensive and it is best to start at the beginning of each project. The sooner our company becomes involved the easier it is to eliminate the risk of cost to the client. In this process there are a number of disciplines that must be tapped. One important facet of which is First Nations involvement and McElhanney provides effective consultation with these groups. For a comprehensive solution to be developed each environmental plan must be tailored to the intricacies of the project.

As you mentioned, mapping is crucial to almost every stage of mine development. In which stage of the mine life cycle has McElhanney seen the most demand for its services?

DT: Companies, both large and small, require an accessible and thorough 3D terrain model in order to build an accurate mining plan. Our main customers have been either currently pro-

ducing mines or well-funded projects that are in the pre-feasibility stage. Another area where our services have been highly requested is in the reclamation stage. The services we provide our clients during this process revolve around what is required, from a geographical standpoint, to reclaim a site. McElhanney performed services for three reclamations last year and is currently looking into another project.

What is your view on the economic development of British Columbia and its interaction with environmental protection?

RM: British Columbians are fully engaged with environmental issues and the political process as

a whole. The average citizen wants to see strong economic development in harmony with environmental protection. The provincial government reflects this view, while understanding the importance of enterprise to the economy. When it comes to the mining industry, each company understands that its environmental footprint must be managed correctly. With the help of consultancies such as McElhanney there is the realistic expectation that residual impacts from mining projects can be effectively mitigated.

The provincial government is currently speeding up permitting and environmental assessment processes. What is your view of the regulatory framework?

RM: Conditionally, I am supportive of the streamlining of environmental permitting. If companies have a thorough and comprehensive assessment there is no issue surrounding this change and it allows the province to be competitive as a jurisdiction. If the province facilitates and accelerates the process it can be more cost effective for individual mining companies, by limiting the delays associated with the permitting process. The regulatory framework must be part of a dialogue between government and industry; the two-way communication between these actors is critical. •

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INTERVIEW WITH

D. Brent Thompson & Patty Moore

BT: PRESIDENT, MINING AND MINERALS

PM: DIRECTOR, BUSINESS DEVELOPMENT, MINING AND MINERALS

TETRA TECH INC.



The mining industry in British Columbia and worldwide is going through one of the worst bear markets in history. What is your opinion on the major causes of the downturn?

BT: The current market is born from a lack of investor confidence in the mining industry globally. Over the last number of years there was lots of money available but, in general, investors never saw returns in terms of dividends or share price increase. In cases like gold, the return from bullion was better than investing in the mining companies themselves. Combined with global mining trends such as nationalization of mines, increased environmental regulations, sovereignty and tax increase issues, and the ever rising costs which have created a lack of confidence in capex predictions, the risk reward balance for the investment community started to become considerably out of sync. In a global

economic situation with concern around demand, it is easy to understand why investors want to get their money out.

How has the downturn impacted Tetra Tech and in what ways are you diversifying as a result?

BT: The downturn has made Tetra Tech look internally to find additional efficiencies in what we do. One of the major trends over the last couple of years is that everything got big – the majority of new mining projects around the world cost at least \$1 billion – these projects are simply no longer feasible. Everybody is going to start looking at their projects differently and looking at smaller, more targeted strategies. Tetra Tech can help in this regard and bring intelligent solutions to the table. There are numerous challenges to consider with regards to getting returns out of smaller operations, such as bringing cost-effective infrastructure to help projects move forward. This kind of thinking absolutely needs to be embedded in the services that we provide. A whole space of the market is going to be addressed going forward: relooking at how operations are doing their mining and looking at alternative mining methods. Mining companies are going through some incremental changes but there are fundamental changes that need to be brought to the table. This environment gives us the opportunity to seek those efficiencies.

How involved is Tetra Tech in British Columbia at present?

PM: In British Columbia, Tetra Tech is working with many juniors that are going into production. We did a feasibility study for Pretium Resources Inc. and they are now looking at building the Brucejack mine; we did the feasibility study for Copper Fox Metals Inc. and Teck Resources Ltd has just

announced a joint venture with them to be 75% owner. This is a very positive sign that the mine will get built; it is a very good deposit, double in size to Mount Milligan. There is a lot of potential in British Columbia and, as investors start spending money, we will go from one extreme to the other and the industry will be flat out busy again.

Tetra Tech works with a number of subsidiaries around the world and your business model is to expand through acquisition. Could you talk us through the dynamic of these partnerships and your global structure?

BT: Tetra Tech is an acquisitive organization in terms of how it drives its growth: 50% of growth should come from acquisitions and 50% should come from organic growth. We use acquisition activity to get into new geographies and new service areas because these companies come with the relationships and local expertise that would take us time to develop on our own, and maybe to a different degree of success. One of the key components to our acquisition strategy is that Tetra Tech only looks at successful companies; we are a very lean company from a corporate overhead perspective and we do not have the people to invest in a turnaround. When we acquire companies, we typically allow them to chart their own course for a couple of years until we get to the stage of developing the relationships to drive further integration into the organization. We are now coming through that process with many of the entities we have in Canada such as EBA, Fransen, and BPR. Over the next year we will be focusing on driving further integration across the country in terms of working together and seeking additional synergies in order to drive opportunities.

The mining industry in British Columbia and worldwide is facing a severe shortage of skilled labor. To what extent is this an issue for Tetra Tech?

PM: The shortage of skilled labor will be an issue for everybody for the next 10 years; the industry essentially missed a generation. We also run the risk of doing it again because we have another downturn and the first thing companies are doing is not hiring new graduates or laying the new graduates off. This is the reason we lost a generation last time. We need to get better at taking advantage of our diverse world and making the workplace suitable for everybody. •

Labor Shortages, Safety and Automation

Searching for new skills and solutions

The global mining industry is suffering from a shortage of skilled labor. As in all facets of the industry, talent comes in cycles: new entrants to the industry are attracted when it is doing well, yet there is a time lag before they gain the necessary qualifications and experience. In the meantime, exploration and mining companies are faced with fewer workers at higher costs.

According to PwC, over the next decade the mining industry in British Columbia will need to hire 15,000 new workers over the next 10 years to keep up with its labor requirements. A large proportion of mining professionals in British Columbia are more than 50 years old and will be retiring in the coming years. Due to the cyclical nature of the industry, relatively few people in the 35 to 50 age bracket entered the mining sector and hence there is a vacuum of skilled labor that the industry urgently needs to fill.

The companies of British Columbia and Vancouver are seeking innovative ways of filling this gap. "One way to address the issue is to hire people from different industries; I have hired people as metallurgists in the past not with a mineral processing degree but a chemical engineering degree," said Ken Roberts, chair of the Mining Suppliers Association of British Columbia (MSABC).

MSABC, in collaboration with AME BC, has launched a program called MineralsEd, which is designed to promote mining in schools. The University of British Columbia now has the most mining undergraduates of any university in Canada, with 40 graduating last spring. "The fact that people are getting into mining at a younger age is testament of the impact of programs such as MineralsEd," said Roberts.

Recruitment firms are increasingly looking to bring in workers from abroad or from other industries. Rakia Recruiting, an international recruitment firm that specializes in placing workers in foreign markets with labor shortages, is

doing both. "The two main groups of foreign labor that we bring to Canada are from Eastern Europe and the Far East. The Canadian government understands the need to support the market by bringing in more people and they have implemented a new program to speed up temporary work visas," said Amir Marciano, managing partner.

The company also poaches workers from other industries such as construction, manufacturing and logistics with the lure of mining salaries that are 20% to 30% higher.

The mining industry is also turning to First Nations communities to help alleviate the issue. Back in 2008, the industry formed the British Columbia Human Resources Task Force for Mining, Exploration, Sand and Gravel, which concerned itself with all human resources related issues in these sectors. The following year the task force evolved into the Aboriginal Mine Training Association (BCAMTA) with an initial grant from the federal government of \$4.4 million and the vision to train aboriginals for employment in exploration, development and mining. In 2012, an additional \$10 million was granted. As it stands today, the association has now succeeded in training more than 500 aboriginals who are actively working in mine operations throughout the province.

In spite of the labor shortage issue, many companies believe that operating in British Columbia is more economical than other parts of the world in terms of labor costs. Ron Thiessen, president and CEO of Hunter Dickinson, cited labor and energy costs as key reasons to why British Columbia has become the company's number one focus today: "There has been price inflation in terms of labor and energy costs in all areas of the world except North America. In Latin America and Africa, labor costs are up tenfold over the last decade; energy costs could be as much. Labor productivity in North America is very different than places like Latin America,

where they typically employ between three and five times more people, so that makes our labor productivity so much more efficient. We started seeing these trends about five years ago and subsequently started focusing initially on North America, and lately British Columbia."

To help alleviate employment costs, companies such as TPD (formerly The Personnel Department) have sought to act as their clients' human resource division. "With large multinational companies, TPD focuses on solutions ranging from international workforce plans to leasing and payroll services. For small- and medium-sized organization, TPD can act as a company's entire human resource department," said Leslie Meingast, CEO.

In furthering its ability to help drive down costs, TPD has also rolled out a temporary workers program, which has provided flexibility to mining companies, given that they have fewer obligations to staffing companies than full time staff. To help support temporary workers TPD provides a benefits program. "This program includes healthcare, dental services and a myriad of benefits normally supplied by the employer," said Meingast.

TPD is not the only company helping mining employees with their benefits packages. Delta Pacific Benefit Brokers, headed by its president, Andrew Block, works hand-in-hand with employees to ensure that they understand their healthcare plans and the importance of financial security. "As an independent benefit broker consultant, Delta has access to virtually all insurance companies, which allows us to provide competitive pricing based on a full market survey" said Block.

One of the biggest challenges, according to Block, with the trend in the industry moving towards older and less healthy workers, is financial planning. "We are finding many over the age of 50 are carrying a significant debt load and some in all age categories will withdraw non-locked-

in retirement plan assets freely for the purchase of almost anything. Our goal is to ensure employees are appropriately invested in their company's retirement plan and that they understand the approximate amount of retirement income they can expect."

Workers exiting the industry are not the only ones being aided by Vancouver-based companies. SkillPlan, a not-for-profit that focuses on workplace education services and essential skills, focuses on linking the needs of the workplace and technical training to learning activities. Given the deficiency in reading, numeracy, computer skills, critical thinking and oral communication among workers in the mining industry, SkillPlan pinpoints foundational skills problems and designs curriculum and training programs to address these challenges. The biggest issue today in mining training revolves around mentorship, according to SkillPlan's CEO, Kyle Downie. "Mentorship has been a critical issue; while many mentors are highly skilled in their trade, they might not be effective in transferring their knowledge to the mentee," said Downie.

In response, SkillPlan is implementing its mentorship program in numerous trade schools, technology institutes and mining companies, to teach workers how to pass along their job related knowledge in the most concise manner. On the ground SkillPlan employs its workforce development program, which consists of profiling the skill levels of selected mining jobs, as-

sessing the corresponding skill set of the local workforce and then developing onsite training programs to address cognitive gaps.

Safety on site is also vital for mining companies, both from an economic standpoint—stoppages can cost around \$1 million/hour or more—and in terms of human security. An important part of creating a safe working environment is training employees to the highest possible standards. Highlighting the synergy between e-learning and simulator solutions is the current partnership between Immersive Technologies and ICOM Productions. "Our evolution as a whole is the gradual adaption to the feedback of our customers," said Greg Karadjian, senior product manager at Immersive Technologies. This partnership has seen ICOM Productions provide in class e-learning solutions which prepare employees to operate mining equipment in a safe and effective way, even before entering one of Immersive Technologies' simulators.

Wenco International Mining Systems is ensuring the safety of open pit mine sites through its PitNav™ and PitNav with Fleet Awareness™ offerings. "PitNav™ is a GPS system modified to track roads within the mine, some of which change daily. Fleet Awareness™ allows [operators] to see other Wenco-monitored machines operating in the mine," explained Glen Trainor, vice president for sales and marketing.

It is also causing a lot of excitement within the company as PitNav™ is part of the process to-

wards automated trucking. "We are working with Hitachi [Construction Machinery] towards developing an autonomous trucking system and PitNav™ is part of Hitachi's Multi-Generational Product Plan."

Motion Metrics International Corp., for example, has designed a range of equipment monitoring systems. They started 14 years ago by looking at shovels: today, president and CEO Shahram Tafazoli described ShovelMetrics™ as "an all-in-one solution, employing a unified hardware and software platform. This includes missing tooth detection; monitoring the size of the teeth—which can wear out anywhere from eight hours to thirty days, depending on the ore being mined—; proximity sensing for collision mitigation, arm geometry and payload weight measurement, and fragmentation analysis."

From shovels, Motion Metrics International has now developed BeltMetrics™, for conveyor belts and are expanding into other types of equipment. This information has an important safety aspect. "By working with mining companies in Canada we learned about other serious challenges on mine sites," explained Tafazoli. "The first of which was loss of teeth and adapters on mining shovels, which can end up in the crusher or on conveyor belts, causing millions of dollars in damage and lost productivity. Individuals have even been seriously injured or lost their lives as a result of tooth-related crusher incidents." •

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INTERVIEW WITH

Andrew Block

PRESIDENT
DELTA PACIFIC BENEFIT BROKERS LTD

Could you provide an introduction and brief overview of Delta Pacific Benefit Brokers Ltd?

In 1994 I founded Delta Pacific Benefit Brokers Ltd. I have been employed in the benefits industry for 27 years and previously worked at the executive level in two international employee benefit consulting firms. Unlike the large firms, Delta does not experience the same high expense and revenue pressures and thus offers value-added services in a more personalized manner. With the client's permission, and where appropriate, Delta will deal directly with employees, explaining the intricacies of their employment benefit programs and assisting with problem claims. Our staff has a well-rounded understanding of the Pharmcare drug program, and the disability process and can make a difference if problems arise. For employers with group retirement plans we also do one-on-one employee meetings at the employer's place of business and correspond by phone and email directly with the employees. The feedback from both employers and employees has been very positive.

Can you outline the comprehensive suite of solutions that you provide specifically to the mining sector?

As an independent benefit broker/consultant Delta has access to virtually all insurance companies, which allows us to provide competitive pricing based on a full market survey. As well, we are a GroupHealth Benefit Solutions partner, which gives our clients access to unique programs for disability and prescription drug claims. Reducing costs over the long term requires a different kind of thinking, otherwise the same program is simply implemented with a different provider and history repeats itself. Mining industry employees can be transient, which provides a host of different issues that

we can be involved in ranging from arranging for the review of pre-existing conditions for occupation disability claims to simplifying an employee's retirement plans by amalgamating those with former employers.

The average age in the mining industry is over 40 years old. Keeping this statistic in mind, which trends has Delta Pacific seen over the last few years in the mining sector?

Virtually all employers across the country including the mining industry are dealing with an ageing work force which is a built in escalator for increased Extended Health and disability claims. Controlling costs by pro-actively managing both occupational and non-occupational disability claims early in the process, along with cost saving options like a centralized dispensary for prescription drugs can make a significant difference.

From the mine employee's perspective, taking a greater interest in their company retirement plan is imperative if they are to retire comfortably. In our one-on-one meetings we are finding many over the age of 50 are carrying a significant debt load and some in all age categories will withdraw non-locked-in retirement plan assets freely for the purchase of almost anything. Our goal is to ensure employees are appropriately invested in their company retirement plan and that they understand the approximate amount of retirement income they can expect.

In a personal capacity you have been involved in a variety of social initiatives. Could you elaborate on your community outreach involvement?

Outside of Delta I have been involved in a variety of public speaking events in relation to making health care education easily accessible to the general population. I sponsor a

number of scholarships for students whose parents are employees at the mines that are my clients.

Where will we find Delta Pacific in two to three years' time when Global Business Reports returns to Vancouver?

Delta will maintain its personalized one-on-one customer service. We will also, continue to look for innovative ways to help control the cost of employee benefit plans for our clients, such as GroupHealth's new funding approach for Disability Insurance, which substantially reduces reserve requirements for employers with 200 or more employees. •



INTERVIEW WITH

Amir Marciano

MANAGING PARTNER
RAKIA RECRUITING

Rakia Recruiting was founded in 1995 and serves the construction, mining and energy industries. Could you start by providing a brief overview of the company and the services you offer?

Rakia Global began in 1995 with a head office in Israel and several branches in Europe. The concept behind the company was to place workers in foreign markets with labor shortages. We were very successful from the outset, building a large database and employing extensive candidate-screening methods. As well as our international service, we also provide local niche recruitment. We find that Canadians are most comfortable employing Canadian workers, but even after shifting labor between provinces, there are still gaps to be filled.

How important is mining to your business compared to the other industries you serve?

Our business volumes in each industry vary by season, but mining is one of the sectors that saved Canada's economy from the global recession. While the oil industry in Canada is somewhat dependent on the US, mining is a stable market with many needs and continuous recruitment. Mining companies in Canada are more open to hiring people with foreign experience than the other industries we serve – both at the high-skilled level and in the trades.

Where do you source foreign workers in Canada from and where would you typically place Canadians overseas?

Primarily, we recruit Canadians into jobs all around Canada. The two main groups of foreign labor we bring to Canada are from Eastern Europe and the Far East. The Canadian government understands the need to support the market by bringing in more people and they have implemented a new program to speed up temporary work visas.

To what extent do you poach individuals from other industries to work in mining?

There is definitely a current trend of poaching workers from industries sufficiently similar to mining that one can easily transfer. The construction industry also lacks workers, but salaries in mining tend to be 20% to 30% higher. Truck drivers can be attracted away from regular transportation into mining and highly skilled mechanical engineers can make a similarly simple transition away from manufacturing. Laborers are laborers in whichever industry, so they can easily switch between them.

A recent initiative from the provincial government is the British Columbia Aboriginal Mine Training Association (BCAMTA), which now employs 542 First Nations people in mining. What are your thoughts on this and the benefits it can bring?

Aboriginals usually stick with the people they know and trust. Mines are often located on aboriginal land and one of the benefits these groups offer is employment. It is important to have local employees serving mining operations – they are the best solution – however there is still a lack of aboriginal workers. Some schools are focusing on developing the young aboriginal generation into mining professionals and there is definitely a focus in the industry for hiring aboriginals, as there is for women and the youth. To aid in the screening process, our company offers an application system called CVApp. This allows candidates to create a digital CV to send to employers of their choice. It is quick and effective and we are confident it will be used by job seekers in the mining industry to aid in the hiring process, especially within the aboriginal community.

In spite of skilled labor shortages, companies are also struggling to retain staff in the cur-

rent climate of equity market turmoil. Are you seeing more redundancies and people out of work in the mining industry?

I do not see people out of work in the mining industry: there are lots of open positions, which are hard to fill. If one mine has financial difficulties, there are others that will accept its workers with open arms. Many small mining companies are impacted by fluctuations in the equity markets, but it is not the same for large groups. One recent trend is a shift in demand towards more technologically skilled people, reflecting the growth of IT and automation in mining. Even recruiting is done using digital systems: a recruitment process that would have taken three months in the past can now be completed in three weeks. Another trend is the growing acceptance of foreign professionals: nationality is no longer even a question.

We carry out our research in key markets every two to three years. Where will Rakia Recruiting be in three years' time and what will be the key topics of conversation?

In three years' time Rakia Recruiting will still be working with our local candidate pool, maintaining excellent relations from bottom to top. As well as finding jobs, Rakia Recruiting will continue providing its candidates with advice, news and many other forms assistance. Going forward, we will focus on placing foreign workers in the mining industry throughout Canada, as required by the market. We also want to act as an intermediary between companies and aboriginal groups, facilitating easier recruitment solutions. •



INTERVIEW WITH

Shahram Tafazoli

PRESIDENT AND CEO
MOTION METRICS INTERNATIONAL CORP.

Motion Metrics specializes in developing sensor and camera based monitoring solutions to improve the safety, efficiency and productivity of mining projects. Could you please provide an introduction to your company?

Motion Metrics is an advanced technology, design, development and commercialization company. It began as a single-person company 14 years ago and has grown to a staff of 30 people. Our company focuses on challenging problems in mining and develops solutions to address these issues. Motion Metrics has focused primarily on mining shovels over the years, developing customized software solutions to run on dedicated embedded computers connected to cameras and sensors. The real-time results are communicated with the machine operator via a ruggedized touch screen display. We describe these systems as machine-vision, sensor-based monitoring solutions. At the moment we are expanding to other types of mining equipment, including loaders and conveyor belts. In future we intend to provide products for crushers, trucks, and drills as well.

Which lessons from your 14 years of experience have been incorporated into Motion Metrics' operations?

The company started by looking at payload measurement inside the buckets of mining shovels, an extension of my PhD thesis at the University of British Columbia. By working with mining companies in Canada we learned about other serious challenges on mine sites. The first of which was loss of teeth and adapters on mining shovels, which can end up in the crusher or on conveyor belts, causing millions of dollars in damage and lost productivity. Individuals have even been seriously injured or lost their lives as a result of tooth-related crusher incidents. Motion Metrics came up with a camera-based, artificial intelligence solution which is now available worldwide on various types of

mining shovels. It is coupled with centralization software that allows for real time warnings to operation centers and mine managers. We have expanded our offerings since then, offering up to five types of monitoring systems using a single embedded computer. Over the last four years we have been developing novel products for loaders and conveyor belts, as well as a portable sensor system, which we are now introducing to the market.

ShovelMetrics™ is one of a number of solutions carried by Motion Metrics. Could you talk us through the monitoring products you provide to the mining industry?

ShovelMetrics™ is an all-in-one solution, employing a unified hardware and software platform. This includes missing tooth detection; monitoring the size of the teeth (which can wear out anywhere from eight hours to thirty days, depending on the ore being mined); proximity sensing for collision mitigation, arm geometry and payload weight measurement, and fragmentation analysis. The latter utilizes the output from a shovel bucket viewing camera to monitor the size of the rocks inside the bucket. The rock fragmentation information would help the blast engineers to optimize their blast parameters. We have plans to add more features to ShovelMetrics™ in the near future.

Motion Metrics has also developed BeltMetrics™, another comprehensive sensor fusion solution that goes above and beyond the products provided by the competition. We saw an opportunity in the conveyor belt market for a one stop solution to sense various parameters under a unified hardware and software platform. The first generation of BeltMetrics™ is capable of sensing fragmentation, payload, and volume of the material being conveyed in real-time and with high accuracy. Essentially, we brought the idea of multiple sensors from

ShovelMetrics™ to conveyor belts. BeltMetrics unifies all of its sensor data onto a single platform, permitting synergy between the data analysis modules, particularly in the realm of calibration. For example, we can use the material profile sensing by the laser sensor and the camera view to detect whenever the belt is empty and use this opportunity to calibrate the payload system to tare weight. Similarly, we can use the laser and camera outputs to detect belt misalignment.

Could you tell us about your MetricsManager™ solution?

The majority of our product line is based on needs communicated directly by our customers. Our data integration system: MetricsManager™ was born when our customers asked us to look into centralizing various data generated by our embedded systems on board the mining shovels, loaders, and conveyor belts, as well as our portable products. The idea is to provide access to both raw and interpreted information to the mine's network, whether directly on site, in the office or even at home. For example, with regards to BeltMetrics™, this allows the mine manager to see accumulated volume, payload, and fragmentation for any desired period of time via a networked device. We also plan to offer ore percentage, humidity percentage and conveyor belt health monitoring features. With MetricsManager™, our collection of various products can be considered as a distributed solution. For more than 10 years we have focused on local intelligence, on individual pieces of equipment and now we are moving beyond to centralization as well as cloud-based services. This means that the mine can host the MetricsManager™ on their servers while data is pulled out and processed on the cloud to provide the senior managers with suggestions on how to improve the safety and efficiency of their operation in one mine or in a group of mines. •

Workplace Training to Address the Anticipated Skills Shortage

By Kyle Downie, CEO of SkillPlan

Quality workplace training keeps a company competitive. According to a November 2013 media release from Mining Industry Human Resources Council, there is an increasing labour and skills shortage in mining as “145,000 positions, over half of which are due to retiring workers, between now and 2023” will need to be filled. Employers will need to consider non-traditional sources of labour, such as Aboriginal groups, to fill those positions.

Currently Aboriginal groups such as the Cree Nation are working with Goldcorp and Tata Steel, and training providers to implement effective workforce solutions. They want to provide Aboriginal workers with strategies that result in increased levels of job performance and opportunities for upward mobility. These workforce training solutions include essential skills programs.

Studies have shown that workers with strong essential skills have higher levels of productivity and safety while on the job. These workers are able to find information more quickly, for example, when searching for a specific regulation in a standard operating procedure in a minimal amount of time. They are able to report to supervisors about a problem with equipment and complete work request forms to ensure that repairs are done and accidents are avoided.

Workers with strong essential skills are also more capable of adapting to new procedures. Technology is continuously changing, resulting in new methods for performing job tasks. Companies need workers who can adapt to these changes. Companies, training schools, and Aboriginal, and non-Aboriginal groups are recognizing the value of having workers with strong essential skills.

Essential skills, also called foundational skills, directly affect a worker’s ability to problem solve or think critically. Essential skills include reading, document use, numeracy, oral communication and thinking skills. They are transferrable skills – not job specific – and are required when a worker reads a schematic for a crusher that needs repair,

calculates the amount of material to be excavated, or communicates instructions to the rescue team during an evacuation.

Essential skills become the driver behind customized occupation-specific training. The goal of these programs is to improve key essential skills or provide support for workers preparing for technical or workplace training.

Profiling the occupation prior to program delivery will align training to workplace goals. Job profiling may include interviewing experienced workers and their supervisors to identify the skills needed in that occupation, and assessing the current skill level of the workers who require training. This needs analysis, completed with input from the employer and based on the profiling and the benchmarking of the workforce, will identify skills gaps.

The program can then be designed to address the skills needs of the workers taking the training. Reading, document use, numeracy, oral communication, and thinking skills strategies are the focus of the training, but participants learn mining terminology and technical skills as a secondary outcome. The use of authentic workplace documents and scenarios, provided by the company, keeps material relevant to the program participants. They receive training that they can apply to workplace situations immediately after completing the program.

This approach to training appeals to companies that are operating mines and need workers with the necessary skills for specific occupations at those sites. Workers complete training that meets the goals and needs of the company within a short time period. For example, when production at Éléonore Mine begins in 2014, SkillPlan will design the essential skills training that the onsite workplace trainer will deliver to Cree workers during their employment with Goldcorp.

Essential skills programs should be flexible in duration, depending on the needs of the company and its workers, and can be offered prior to or concurrent with technical training or on-

boarding. Companies can work with workplace training providers to design onsite training centres where workers can receive training while employed with a mining company. Training that is customized and flexible is an excellent fit for companies that want to improve job success for their workers. Workers who develop their essential skills have increased opportunities for workplace success.

In addition to essential skills training, companies that implement mentorship programs will contribute to the passing on of industry knowledge as current workers retire. Workers who are trained as mentors will have the skills to pass on valuable job skills and know how to take advantage of on-the-job mentoring opportunities. Each opportunity for job training adds to the overall skill and performance level of a company’s workers.

Implementing mentoring into technical training programs is another solution to meet future hiring needs for both Aboriginal and non-Aboriginal groups. Mentoring programs that encourage the passing on of job skills is just one possible solution to the anticipated labour and skills shortage. Skills training, which targets the needs of companies and Aboriginal groups while still aligning to the workplace, is another. Overall, companies that invest in skills training will increase the likelihood that its workers will commit to long-term employment in the mining industry. *

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For the last 15 years, **Kyle Downie** has been leading educational teams to develop and design curriculum, instruct essential skills courses, mentor instructors and program developers, and create educational programs for private and public industries. Currently, he is the Chief Executive Officer with SkillPlan where he focuses on developing strategies to improve the essential skills of people working in the construction and mining industries, both nationally and internationally.

SkillPlan is an organization with over 20 years of experience providing workplace education consulting services and essential skills resources to the mining, construction, and utilities industries. To contact us about our services, email info@skillplan.ca or call 604-436-1126. Or visit skillplan.ca for more information.



INTERVIEW WITH

Kyle Downie

CEO
SKILLPLAN

SkillPlan is a not-for-profit organization with more than 20 years of experience providing consulting services to improve the essential skills of workers in the mining and construction industries. Could you provide an introduction to your company and how it has developed over its 20 year history?

SkillPlan has always focused on providing services to industry and improving the skills of its workers. We are considered a leader in Canada for pinpointing foundational skills problems, and designing curriculum and training programs to address these challenges. We serve 14 international building trades, over 500 employers and numerous private and public technical training institutions.

Our consulting services include working directly with employers, employees and workplace educators; designing training systems; and developing studies for the federal government. Our ability to design learning solutions that address the needs of workers with skill gaps comes from our involvement in Canadian research into how essential skills are used at work and in technical training.

SkillPlan was involved in a national pilot and research project from 1996 to 1997 to evaluate the essential skills required in approximately 200 occupations. These essential skills include reading, numeracy, oral communication, and thinking. The result of that research was an occupational profiling methodology that became a national standard.

From this same research, SkillPlan developed a framework for designing assessments and curricula that improves worker skills in the areas of reading, numeracy, computer skills, critical thinking and oral communication, among others. All of our curricula use tasks that replicate workplace situations to allow for a more efficient and effective transfer of knowledge to workers.

SkillPlan plays a large role in the development of

essential skills across the country. How important is it to have a location in the Greater Vancouver Area, in order to service your mining clients?

While we are based in the Greater Vancouver Area, we provide services across the country and intend to increase our international reach. SkillPlan's educators deliver training programs directly to the mine site, no matter the location. We produce authentic learning materials that instructors can implement into their training programs. These materials are paper-based, but available to our clients across the country. For example, we are currently collaborating with the Cree and associated mining companies to help design their workforce plan in Quebec.

We also have online materials that are widely accessible. For example, the "How Do Your Skills Measure Up?" section on the SkillPlan website receives half a million hits per month from training organizations across Canada. SkillPlan is currently in the process of setting up a virtual mining and utilities Essential Skills Training Program to fulfill requests for our services from countries as far away as Chile and Saudi Arabia.

You touched on the products you provide and your growing international reach. Could you take our readers through how your essential skills program is implemented?

SkillPlan's implementation process begins when a mining client sets up its operation in a remote location. With many of these operations, the mining client sets out to hire a specific number of personnel from the surrounding area. SkillPlan analyzes the cognitive abilities of this workforce as well as profiles the skill requirements for selected jobs within the mine. This analysis helps us to find typical skill gaps in the workforce relative to the job skills required. Next, we develop a tailored system to ensure workers are trained up properly. The system is implemented to ensure that these individuals develop their essential skills to and beyond the levels required to complete their job tasks and the technical training. •

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Full Value Creation of Physical, Human and Business Assets

By Glen Trainor, Vice President Sales & Marketing,
Wenco International Mining Systems Ltd

More than ever the global mining industry is facing some new and some growing challenges to support and sustain a viable business. At the product end of the business, commodity prices can fluctuate substantially and rapidly force mining companies to be more reactive and less proactive than they would like to be in managing their business. Potential viable ore bodies can disappear virtually overnight from a company's asset portfolio as related commodity prices drop while environmental control and operating costs escalate. Fortunately, for the more progressive mining companies, rapidly advancing technologies empower them to better deal with these current and future challenges. Those technologies functioning within the open and integrated architecture of today's Mine Fleet Management Systems (MFMS) can help the process of Full Value Creation in the three key asset components of an industry namely; Physical, Human and Business Assets

Mine Fleet Management Systems have a real-time operational focus on the efficiencies of production that take into account material quality requirements, equipment utilisation and health, and operator safety. These benefits are realized immediately; load-by-load, shift-by-shift, day-by day, offering improvements across shift boundaries to create consistent performance and outcomes from varying crew capabilities. These are the real-time performance improvements that these systems deliver on the physical assets of the company.

But it is the additional aspect of how you use that data that will create opportunities for continuous improvement. These systems are great at providing measurements and delivering those results, but it is the personnel at the mine that need to identify what Key Performance Indicators, what measurements, are the most significant. Being able to take results that very clearly identify how the mine is performing, determine why mine performance is at that level, and then create a plan on how to improve.

Systems providers need to be proactive in at least three areas to help their customers succeed in this goal.

One: Provide tools with the flexibility to not only report data, but to deliver meaningful rep-

resentations of results for accurate and informed decision making. Dashboard tools are ideal for this purpose, especially if they are user configurable with options for multiple visualizations and data sources.

Two: Allow ease of access to the information. Have an open system philosophy that encourages their customers to not only access the data but share it among other systems at numerous levels. Whether it's at a localized level where one user benefits from connectivity of technologies, or at an enterprise level where key data is fed into systems such as SAP for the development of operational strategies.

Three: Understand the entire value chain and provide coaching at every level. Throughout the scope of our system, Wenco is able to provide training for the machine operators, work with ITC departments to ensure system reliability, and engage with mine engineers to ensure that their plans are being properly executed.

We are also fortunate enough to be associated through common ownership by Hitachi with Business Intelligence companies such as Ideaca and Celera that work with Management at the mine sites and at the C-Level to achieve sustainability through operational strategies. At the managerial level it is about leveraging even more value from systems, whether from proper and planned integration of systems into SAP, or through identifying benefits and using those benefits to lead the implementation of new methodology. At the C-level it's about being responsible to the shareholders by delivering true operational value through the implementation of best practices across a global footprint.

It all boils down to the same source data, and using that data towards achieving the common goals at each level, and at every point along the value chain: safely increasing operational throughput, improving mechanical reliability, and lowering costs. *

Wenco International Mining Systems advances the efficiency and safety of the world's surface mining equipment through their fleet management systems. Wenco continually researches industry needs and strives to provide the most comprehensive and all-encompassing solutions in positioning and machine guidance programs; equipment health; state of the art productivity reporting and our trusted automatic dispatch systems.

INTERVIEW WITH

Glen Trainor

VICE PRESIDENT, SALES & MARKETING
WENCO INTERNATIONAL MINING SYSTEMS LTD

Wenco's services revolve around cost saving measures for open-pit mining companies. Which aspects of these services allow companies the highest cost savings?

The cost-savings aspects of our services are client specific. At one level, simple cost-savings measures can be made through monitoring equipment for inefficiencies. This is provided through Wenco's real-time information and historical reporting systems. Maintenance is another aspect that ties into machine management and one in which our clients have seen significant capital-saving benefits. Our systems tie into all major Original Equipment Manufacturer (OEM) health systems, providing up to date reporting, emergency alarms and notices for predictive maintenance. Ore-quality control is also an area in which our clients have seen savings, through the utilization of our high precision system, BenchManager™. This product's built-in elevation control function allows companies to build the mine according to its design and ensures that capital is not mismanaged during the creation process. Safety is also a crucial area for our customers, which is provided by two of Wenco's products: PitNav™ and PitNav with Fleet Awareness™. PitNav™ is a GPS system modified to track roads within the mine, some of which change daily. Fleet Awareness™ allows them to see other Wenco-monitored machines operating in the mine. Both of these products reduce the risk of accidents at open-pit mining locations.

Wenco provides its solutions to clients who operate in various locations across the globe. How has Wenco developed its products to consistently operate in remote and inhospitable areas?

The remoteness of mining sites did pose a variety of challenges when the company was first established. Technological innovations have allowed Wenco to overcome this issue. Our open architecture philosophy combined with the use of standard industry equipment has been pivotal in this regard. Primarily, the growth and reliability of Internet and associated Wi-fi and communications technology allows Wenco technicians, when requested by the mining company, to remotely access the equipment and troubleshoot any issues from our offices. In terms of the in-

hospitable nature of some mining sites, technological advances have also eased the difficulties in providing our services to remote areas. Our hardware is designed to withstand elemental effects in both frigid and arid conditions.

WencoDB™ allows your products to be accessed by third party systems. How does this process work and what are the benefits of this ability?

The instrumental feature of the system is that mining companies retain ownership of the information provided. Customers have the ability to access, export and import their data without the need for involvement from Wenco. Wenco is solely there to provide round-the-clock support to these customers to ensure the smooth transfer of data. Wenco also provides a public Application Programming Interface (API) in our systems, allowing for the easy transfer of data to and from other systems providers. Not only can data from these other systems reside in WencoDB™, but any events or warnings can be retransmitted through the Wenco System to equipment operators and supervisors. This plays an important role for safety, allowing operators and those involved in the worksite to be aware of hazardous events and work place alarms.

Much of our conversation has dealt with the software services provided by Wenco. Could you expand on the installation process for both Wenco's software and hardware services?

There is typically an eight to 10 week procurement cycle in which the equipment is gathered and readied for shipment. Installation is an extremely multifaceted process and before it occurs Wenco staff makes pre-installation visits to analyze the needs of our client. The installation process begins with a team of hardware and software providers being sent to the mining site. On-board equipment, including; broadband systems, radio systems and software are all installed before training occurs. Round-the-clock support is then provided with the lead software engineer responsible for the installation of the system as the primary contact for mine sites. After installation operators, field supervisors, dispatchers and the core system administrators are all taught how to best utilize Wenco's products. This includes a focus on interoperability; which allows Wenco to ensure our clients are provided with the best Return on Investment (ROI) from their systems.

As noted throughout the interview Wenco provides a variety of innovative services to open-pit mining companies. In what sense would you say that Wenco's products and services are unique to the mining industry?

Our products and services are unique to the mining industry in the way in which they empower the user. Our open architecture is but one aspect of this philosophy that our clients own the data and can access it to fulfill their maintenance, production, ore-quality and safety needs. Another aspect is our willingness to work with other information providers to centralize the data. This is true both at the office and on board the machinery with our user-centric focus to drive effective decision making. It is important to note that although we provide a wide range of products of services and new innovations are always demanded of us as our client partners push to make the product even better, we ensure the systems are applicable to every size of operation. •

Wencomine

Managing your mine fleet is just the start.

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real-time machine health
actionable data
safety

then add

dispatching
machine guidance
maintenance
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consulting



Changing Treatments

Water Treatment and Environmental Regulations

With the federal government actively looking to tighten the 2002 Metal Mining Effluent Regulations (MMER), Canada is once again leading the substantial improvements the mining industry has made in reducing its environmental footprint over the past two decades. As well as tightening up the MMER regulations, new metals are also being added to the list including selenium, iron and aluminum. Selenium is currently an area of particular concern in British Columbia; in April, Teck Coal was ordered to clean up its act after high levels of the chemical were recorded near its mines in the Elk Valley watershed. Receiving water regulations permit companies to discharge effluent into bodies of fresh water only at quantities that will not impact the overall quality of the water in the long term: if the water is very clean, the mine permit will be set below the regulations. “The winds of change are blowing within water treatment in mining. We are now seeing very demanding discharge specs in the parts per billion range and so the whole technological approach that the industry takes needs to change,” said Andrew Hall, vice president of sales and marketing at BioteQ Environmental Technologies, a technology provider of specialized water treatment solutions to the mining industry.

In British Columbia, the Liberals are also moving towards shortening permitting times, meaning that Vancouver’s environmental consultancies have had their hands full. Now more than ever, mining companies in the province have looked to stringently adhere to environmental guidelines, particularly given the tremendous costs associated with a permit rejection by the Ministry of Energy and Mines. The tightening up of environmental regulations, combined with the need to increase efficiencies during

these lean times, has led mining companies to turn to increasingly innovative solutions to meet their criteria.

One firm that has seen a dramatic increase in business as a result is TOMRA Sorting Solutions, a Norwegian-listed sensor-based sorting company that helps miners create efficiencies by analyzing their ore and removing uneconomic material at a very early stage, while also reducing their environmental impact. “As a result of the current economic climate, people are looking at how to increase recovery and throughput without doing a mill expansion. A small sorting plant ahead of a mill can potentially remove the need to add another line to a mill; equally, if you can build a smaller mill because you have thrown out 40% to 50% of the waste material before it hits the plant, the reduction in energy cost, footprint and amount of tailings being produced creates phenomenal savings. Furthermore, the obvious economic impact of building a mill that is up to 50% smaller is huge. As projects need to become leaner, sorting absolutely provides them with a way to optimize efficiency. People are accepting the fact that they cannot simply get bigger, consume more energy and hope for economies of scale,” said Matthew Kowalczyk, sales and project manager for the Americas.

“Companies are looking for lower grade ores because the higher-grade ores are harder to find. They therefore require technology that is very efficient to offset their operating and capital costs,” said Greg Rasmussen, process manager for mineral processing at Xstrata Technology. Increased efficiencies and lower environmental impact will inevitably dominate the future of mining in British Columbia and worldwide. “Going forward, the focus will be on green mining that is energy efficient and will reduce operating costs

while also reducing footprint. Companies will be looking at how to exploit a mineral deposit at the lowest cost with the lowest impact on the environment possible. As mineral grades become lower and harder to mine there are innovative companies such as Planetary Resources who are looking into mining asteroids, which are abundant with minerals. The sky is not the limit for the mining industry.”

ERM Rescan has proven to be both multifaceted and robust in their approach to environmental services. Clem Pelletier, principal partner, highlighted his company’s work with Seabridge Gold’s KSM project, which it has been working on since 2007. “The project is complex due to the multiple jurisdictions, including the Canadian Environmental Assessment Agency with a number of federal departments: British Columbia’s Environmental Assessment Office with multiple ministries; four First Nations and a Treaty Nation; the state of Alaska and U.S. federal agencies,” said Pelletier.

This dizzying array of stakeholders is due to the location of the project and associated terrain and water management issues. ERM Rescan dealt with stakeholder relations while concurrently utilizing state-of-the-art environmental mitigation strategies and management plans to minimize the impact of the receiving environment; highlighting the company’s collaborative and adaptive management approach.

For mines in operation, both underground and open pit, Xylem helps to reduce the use of water on site while protecting operations from the adverse effects of H₂O. “In underground mines we move water out of the mine preventing costly flooding and in open pits we make sure that water running into the open pit is removed before it damages any equipment or the environment,”

Courtesy of Westcoast Resorts

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said Jay Sommerfeld, regional sales manager for water solutions.

Having branched out through the purchase of technologies and other companies, Xylem now sends treatment plants to mine sites so that industrial and municipal water can be treated to meet industry regulations on effluent and wastewater.

After mines cease to operate, it is the turn of companies specializing in reclamation to ensure that adverse environmental effects are avoided. Enter O’Kane Consultants, led by Mike O’Kane, president, labels itself a leading expert in mine waste cover systems, final landform design and performance monitoring. O’Kane is adamant about ensuring that the specific characteristics of each individual mine site and individual design criteria are taken into consideration when the reclamation process begins. “For us, a project specific perspective is important. You need to make sure that there is a rational basis for the type of cover system required and think about what your landform needs to achieve; what are the design criteria and what are the closure objectives?”

This step-by-step and tailored professional process caught the attention of Aboriginal Affairs and Northern Development Canada, a federal body. O’Kane Consultants was the lead editor for a technical guidance document entitled ‘Cover System Design in Cold Regions’ commissioned by Aboriginal Affairs. “We are now in the process of writing a cover system design guidance document for temperate, arid and tropical areas, which is being funded by the International Network for Acid Prevention,” said O’Kane. •



INTERVIEW WITH

Vasee Navaratnam & Marcel Bittel

VN: VICE PRESIDENT & GENERAL MANAGER, MINING & METALS
MB: OPERATIONS MANAGER VANCOUVER, MINING & METALS
FLUOR CANADA LTD



Fluor operates in more than 25 countries around the world. How important is Vancouver and British Columbia to your business and do you see the province as a growth market?

MB: The Vancouver office is Fluor's most geographically diverse mining office in that it serves projects anywhere in the world.

VN: The Ivanhoe Mines Oyu Tolgoi Copper Mine construction in Mongolia was engineered out of the Vancouver office. We are currently also performing work for facilities in Russia, Peru and British Columbia. In British Columbia we currently have two projects ongoing: Mount Milligan for Thompson Creek Metals Inc., which is a joint venture nearing completion with AMEC, and Highland Valley for Teck Resources Ltd British Columbia is certainly a growth market for Fluor, our Calgary office does energy and chemicals work and they are pursuing several opportunities for Liquefied Natural Gas (LNG) projects in British Columbia, including the pipelines.

Fluor provides EPCM and project management services to the oil and gas, petrochemical, power and mining industries. Could you start by providing a brief overview of Fluor Canada Ltd and its growth over the years?

VN: Fluor's Canadian mining operations originates from Wright Engineers, which was a privately owned company founded 66 years ago. Wright Engineers started out as an equipment sales company and grew into an engineering company. In 1988, Fluor Canada acquired Wright Engineers and with that entered the Vancouver market. The acquisition was a success; Wright Engineers was predominantly focused on engineering and the integration with Fluor's extensive construction capabilities created a broader market reach. Fluor has grown tremendously over the years; upon acquisition the company had around 250 employees, nowadays we have around 800 people in the office and 500 people in the field.

Have you seen any change in demand for your services over the years in terms of geographical jurisdiction?

VN: In the past, we used to do a lot of work in British Columbia but the mining industry went into slowdown so we concentrated elsewhere. However, in the last three to four years, we have been doing much more work in British Columbia. We currently have a couple of opportunities in front of us in the province; it is an attractive market for us to be involved in.

The market in Vancouver has been through one of the worst bear markets in history and companies across the board are watching their bottom lines closely. How has this impacted demand for Fluor's services?

VN: Over the last three years Fluor has been growing. At present we are flat in mining but

we have certainly not been as impacted as others because we had already started working on a number of major projects when the downturn set in.

MB: Regional diversification as well as diversification with different metals has helped us a lot. The future will certainly be more challenging but we have been lucky so far and weathered the storm well. The challenge has been due to increased uncertainty in the world of mining as everyone scrutinizes their plans in more detail.

The mining industry worldwide is facing a major issue with regards to recruiting skilled labor. Is this a problem that Fluor also faces?

MB: Fluor is very mindful of attracting and retaining skilled resources, we have a big focus on keeping the best people, promoting them, supporting them and giving them development opportunities. Fluor is both global and diverse in the industries we serve so many people consider us an attractive place to work.

VN: Fluor works closely with the University of British Columbia and we are focused on developing that relationship further. Our first preference is to hire locally but we have also been successful in bringing in people from elsewhere such as Australia and the United States because Vancouver is such a great place to live. In the last year, the visa application process has tightened up in Canada so it can take some time but we always eventually manage to get them in. As Fluor is such a large corporation, when we need resources we tend to go to other Fluor offices and transfer people across.

What would you consider are the main opportunities and challenges that British Columbia faces with regards to mining?

MB: Fluor is looking to provide our clients with some kind of certainty in an uncertain climate: we have been increasingly focusing on providing direct hire construction as a way to alleviate labor uncertainty. We also look for off-site construction opportunities, such as modularization, to reduce on-site craft requirements. We anticipate seeing a huge increase in demand for these services going forward.

VN: We have set up a separate division in Canada to manage the craft labor demand for our projects across Canada. The main competition for people comes from the oil sands in Alberta where salaries are higher. Many people, however, prefer to live and work in British Columbia because they enjoy what it has to offer. •



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- 3) Soil-plant-atmosphere modelling-"Cover Modelling"
- 4) Fine Tailings management
- 5) Unsaturated flow and solute transport analyses (hydrogeology)
- 6) Field performance monitoring
- 7) Data management
- 8) Mine site surface water management and water quality
- 9) Geochemical and hydrogeologic characterization
- 10) Development of construction quality assurance and control programs

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INTERVIEW WITH

Mike O'Kane

PRESIDENT
O'KANE CONSULTANTS INC.

Could you please provide an introduction to O'Kane Consultants and its history?

My father, Terry O'Kane, started O'Kane Consultants in 1993 and provided services to the mining industry in the area of mineral processing. I joined in 1996 after finishing graduate studies and working as a research engineer for a couple of years at the University of Saskatchewan. I was encouraged by my father and my mentor Dr. Lee Barbour, my graduate studies supervisor, to try consulting on my own on the basis of the niche technology I was part of developing at the University of Saskatchewan; specifically application of unsaturated zone hydrology to mine waste management. Bob Gardner, who has since passed away, was at that time leading a lot of the reclamation research work for Teck Resources (then Cominco); he believed in me and gave me my first consulting job. Soon after, O'Kane started work for BHP Billiton in Australia. Both clients were incredibly generous in terms of allowing us to use the work being done for them to show other people what O'Kane could do and from there we continued picking up work in different places.

O'Kane Consultants has established offices as far as Australia and New Zealand. Could you talk to this international network and Vancouver's role within it?

O'Kane Consultants' purpose built offices are in Saskatoon, Fort McMurray, and Brisbane. Fort McMurray and Brisbane started together in 2003 because we were doing a lot of work in those areas—across Australia and up in the oil sands—and we needed people on the ground. The remaining offices were more opportunistic; we were fortunate to have the opportunity to work with very smart and driven people, which quickly resulted in additional in the areas they needed to live, as well as in other parts of the world.

Vancouver is a large part of our business because of our work with Teck in the Elk Valley; we also do work on Vancouver Island. This city is the epicentre of mining in Canada and for a lot of the work we do up in Canada's north, the key people are down here in Vancouver. We do not have a Vancouver office but we have been able to serve the needs here through Calgary and Cranbrook. In this day and age, nobody really cares where a company is based, what matters is how you work with them, and what you can do for them.

As the world's leading experts in mine waste cover system, final landform design, and performance monitoring could you talk to how the mine closure process works?

For us, a project specific perspective is important. You need to make sure that there is a rational basis for the type of cover system required, and think about what your landform needs to achieve; what are the design criteria and what are the closure objectives? Design criteria must flow from closure objectives. For example, to achieve have confidence there are minimal, or no, adverse impacts to the receiving environment we work our way back up through the groundwater system, within the mine waste landform, and to the cover system; we ensure there is an acceptable understanding of the source terms and the flow system for the site. That is where I believe O'Kane provides value to a mining company; by making sure what they are doing is based on the reality of the site. Instead of stakeholders, whether within the mining company or outside, staying something along the lines of, 'I feel the cover system should be of a certain design and therefore thickness,' they can say, 'I need this design and thickness in order to meet the design criteria.'

Are there any particular examples of work that aptly highlights these costs saving measures or

the technological innovation that your company employs?

We are very fortunate to work with a vast array of clients at many sites around the world. The Savannah Nickel Mine in Australia (Panoramic Resources) comes to mind; there is also the Whistle mine site in Ontario (Vale); BHP Billiton Iron Ore in Western Australia; as well as the work we have done for Areva and Cameco in Northern Saskatchewan. We really enjoyed working at the Ridgeway mine site in South Carolina (Rio Tinto); I believe we contributed in a very positive way to the site achieving its closure objectives. There are numerous other examples where we have gone through this process, and worked with our clients to help them achieve their objectives.

When Global Business Reports returns in two to three years where will we find O'Kane Consultants Inc.?

Recently, O'Kane Consultants was the lead editor for a technical guidance document called Cover System Design in Cold Regions, funded by Aboriginal Affairs and Northern Development Canada. We are now in the process of writing a cover system design guidance document for temperate, arid, and tropical areas, which is being funded by the International Network for Acid Prevention. In both cases, we have been fortunate to have the opportunity to refine our thinking while working with very talented and experienced people who are also experts in mine closure planning. This has allowed us to take our thinking, and theirs, into a document, which essentially advocates an improved framework for the cover system and landform design process. All too often there are too many generalities with cover system and landform design, and this thinking must evolve to a more site-specific approach. •



INTERVIEW WITH

Matthew Kowalczyk

SALES & PROJECT MANAGER AMERICAS
TOMRA SORTING SOLUTIONS

Could you talk us through TOMRA's sorting technology?

The resource revolution is our view on the sustainable and responsible use of our world's resources, whether it is food, recyclable materials or primary sources. There are finite resources in the world and using and re-using them efficiently should be the preoccupation of everybody. It also affects the bottom line: if you can extend a resource such as a mine life or can recover material that was previously unrecoverable, that creates great value for business. Sensor-based sorting is the discrimination of individual particles based on their value. A huge proportion of energy usage in mining goes into crushing and grinding; sorting allows mining companies to look at every particle at a very coarse size before investing energy, material, water, resources and money, and remove the uneconomic material at a very early stage. This allows companies to get into lower grade areas and turn resource into reserve; it allows companies to look at more efficient bulk mining methods; it allows companies to lower water usage in mills and build smaller mills; and it allows companies to have a lower impact on the environment in terms of mine residues and energy use. The fundamental concept is to remove waste material as early in the process as possible.

Is sensor sorting a well-known technology in the mining industry?

Everyone sorts in the mining industry, whether they are mining engineers sorting ore and waste on a truck by truck basis, or metallurgists floating off gangue minerals at 100 microns, but they do not do it at the particle size that TOMRA sorters handle. Sensor-based sorting technology is very mature; automated sorters have been used for the last 50 years. It is, however, only well known within certain market segments. Sorting is very well known in the gemstone industry, it has been used for many years and there are more than a dozen sorters in the Canadian diamond mines that use our equipment. For industrial minerals, our technology is implemented in many systems in Europe and is now gaining a foothold in North America. Regarding base and precious metals, on the other hand, sorting is not a very well known technology at all.

How does TOMRA differentiate itself from other sorting companies?

TOMRA invests a huge amount of money in research and development (R&D) that we put back into new sensor and new application development; there are more than 800 people at TOMRA who work solely on sorting. The culture of the company is to always continue innovating with new sensors, new applications and new understanding of our applications to add value to our customers. One of the big advantages of TOMRA Sorting is that we accompany clients, their

consultants and engineering companies right from initial characterization of the ore body at drill core to mini-bulk and onsite pilot plants and all the way through to installation and operations.

How has the current economic climate impacted demand for TOMRA's services?

As a result of the current economic climate, people are looking at how to increase recovery and throughput without doing a mill expansion. A small sorting plant ahead of a mill can potentially remove the need to add another line to a mill; equally, if you can build a smaller mill because you have thrown out 40% to 50% of the waste material before it hits the plant, the reduction in energy cost, footprint and amount of tailings being produced creates phenomenal savings. •

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INTERVIEW WITH

Heather MacDonald & E. (Liz) Van Warmerdam

HM: CANADIAN ENVIRONMENTAL MINING LEAD
LWV: PROJECT MANAGER
CH2M HILL CANADA LTD



market. We are currently working on developing environmental risk management strategies, as well as managing solid waste and water treatment projects with companies with active mines in British Columbia; we are also working with companies on very early stage pre-feasibility studies and advanced exploration type work. Commodity prices are off-peak at present but there is always going to be a global demand for resources and British Columbia is a prime market for that. Despite the current fiscal climate, there is still exploration going on and there are still mines that are opening and expanding.

What is your strategy going forward with regards to penetrating the mining industry in British Columbia?

HM: The need for infrastructure is a big challenge for mining companies in British Columbia, particularly in the more remote parts of the province. With development capital shrinking, companies need to optimize costs and to make accurate predictions more than ever. To confidently make investment decisions, the mining industry is looking for expertise not just in infrastructure engineering, but in firms that know how to design the work, integrate it into their client's mine development plans and to also get it approved.

On top of that, CH2M HILL is becoming increasingly recognized as a leader in a few key technologies of interest to the mining industry, including sustainability, land reclamation and water treatment. CH2M HILL possesses both the culture and the talent to deliver integrated sustainable solutions to industry and we are ranked as a leader in sustainability consulting and the leader in sustainability innovation out of 16 firms assessed in Vedantix' 2013 Green Quadrant Environmental Consulting Report. We were also awarded an award of engineering excellence in Alberta earlier this year for our work in mine site closure, conservation and reclamation planning.

Could you start by providing a brief overview of CH2M HILL and how it has evolved?

LWV: CH2M HILL started out as a small, employee owned company of four civil engineers primarily focused on water supply and wastewater treatment projects. Over the years, we have expanded in size and diversity to where we now provide a full range of environmental consulting, engineering, procurement, construction and program management across a wide range of markets and around the world.

How important is mining to your business and where is your main focus geographically?

HM: CH2M HILL has been providing services to the mining industry for over 35 years. We completed over \$100 million of mining related work in Canada and internationally over the last year and the majority of that was done in North and South America. We are doing quite a bit of work in British Columbia and we see it as a growth

Finally, CH2M HILL has long been recognized as a leader in wastewater treatment, particularly with respect to management of selenium in mining wastewater.

With the tightening up of environmental regulations in Canada, do you anticipate an increase in demand for environmental services going forward?

HM: There are increased regulatory drivers but there are also other factors driving demand for innovative and effective management. The proposed lower limits of the Metal Mining Effluent Regulations (MMER) will affect most mines and they are also looking to expand that to coal and diamond mines so that will certainly be a driver for technology and improved efficiency and innovative treatment systems.

What are the main challenges you have found from operating in British Columbia?

LWV: First Nations engagement is key to most mining projects in British Columbia. In our experience, successful projects engage and collaborate with First Nations from the very beginning. There are numerous First Nations and each have unique cultures, values and traditions. And each First Nation has their own specific agreement. Solutions must therefore address the specific needs and interest of the respective First Nation community. These challenges bring out the best in what CH2M HILL has to offer because it requires outside-the-box thinking, which we are excellent at, as well as innovative approaches and collaborative solutions.

Could you talk us through your approach to projects and why it is effective?

HM: The earlier in a mining operation's life cycle that we can be involved, the more effective we can be in helping in helping our client's manage the triple bottom-line. Our approach to sustainability is to first determine cost-efficient ways to achieve a goal whether it is to increase production or achieve compliance with an environmental requirement. Selection of the preferred option from that short-list is then based on examining full life-cycle costs with respect to resources, labor and social impact and recommending the option that provides the best value. It is so effective in a number of ways because the better one understands the needs and consequences of a course of action the less likely the potential for unpleasant financial surprises later. Also, when social impact is a core criteria for the evaluation of options, the resulting actions usually build good neighbours. •



INTERVIEW WITH

Greg Rasmussen

PROCESS MANAGER FOR MINERAL PROCESSING
XSTRATA TECHNOLOGY LTD

Over the years Xstrata Technology has pioneered numerous solutions that have improved efficiencies in smelting and the refining process. Could you talk us through the technologies that you are personally most proud of?

My main areas of my focus are the IsaMill and the Jameson Cell technologies. The IsaMill is a technology that was initially developed back in the mid-1990s by MIM with the initial focus towards the McArthur River lead-zinc mine; they required an ultra-fine grind at the scale of 7 microns to liberate minerals in order to get a saleable product. They tested numerous solutions over 15 years but nothing could grind as efficiently as required so they decided to work towards their own technology. The solution started off with batch scale ultra-fine grinding technology and became a full scale continue ultra-fine grind stirred mill technology; we have now expanded applicability of the technology into mainstream grinding. The IsaMill uses a ceramic medium rather than steel balls, which affect the metallurgy. The first IsaMill was built and launched commercially in 1995 and now there are 121 mills worldwide. When I started with Xstrata in 2008 we had four mills in North America, now we have 23.

The Jameson Cell was also developed by MIM Technology; they wanted something that could provide more control over bubble size and much more intense mixing than conventional columns cells. The Jameson Cell offers better control of grade recovery using less power by producing smaller bubbles which have more chance of picking up minerals as there is more surface area. The Jameson Cell is very low maintenance and provides very quick, high intense mixing with the finest bubbles produced on the market, therefore providing a higher recovery. The Jameson cell typically has returned 70% to 90% recovery at final grade in one cell and so it also reduces the footprint of time required. The Jameson Cell is now the number one flotation cell for coal in Australia but its success depends on the market area. We are currently undergoing a big push to increase awareness of the technology in North America: in the late 1980s and early 1990s the Jameson Cell was released here but initial designs resulted in process and maintenance challenges and it was used in areas where it should not have been applied. We have now gone through four iterations of the technology so it is now our aim is now to create trust in the technology and convince the market in North America that it has improved.

Mining companies are constantly looking to access lower grade ore and reduce their environmental footprint. What challenges and opportunities does that create for Xstrata Technology?

Companies are looking for lower grade ores because the higher-grade ores are harder to find. They therefore require technology that is very

efficient to offset their operating and capital costs. There are an increasing amount of higher tonnage operations and, with them being potentially higher metallurgically challenging ores, the focus on technologies that are very power efficient and easy to work with. Xstrata Technology goes through continuous improvements to optimize our technologies and we are always looking at what the market needs and what challenges the future will bring. Going forward, we will see a lot lower grade ores, which are usually more complex metallurgy and requiring a finer grind so there will be a need for technology that is going to tackle that. At Xstrata Technology, we do not provide equipment we provide solutions. We will not supply our technology for projects if our technology is not suitable for the circumstances with the target of us being a benefit to our customers. •



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Creating Anaerobic Environments to Control Acid Generation in Pyritic Material

By Robert L. Kleinmann, Senior Mining Technologist, CH2M HILL Ltd and James G. Gusek, Senior Engineer, Sovereign Consulting Inc.



RLK

Acid rock drainage (ARD) generated by the oxidation of pyritic waste material from metal and coal mines is generally dealt with by water treatment. An attractive alternative to water treatment is to lower the rate of acid generation. One way this is commonly done is by adding alkalinity, which, if sufficient, reduces the catalytic activity of iron-oxidizing bacteria and precipitates dissolved iron as ferric hydroxide. A second option involves dramatically reducing the rate of water flow, since water is both the reaction medium and the principle contaminant mechanism. However, unless the site is in an arid environment, it can be very difficult and expensive to eliminate enough water to significantly reduce contaminant mobilization and migration, though reducing contaminant load is sometimes possible. A third option is to dramatically lower oxygen levels (reducing it below 0.5% will even curtail ferric oxidation of pyrite by inhibiting bacterial oxidation of ferrous iron). Depending on the site, it is sometimes possible to make the system virtually anaerobic (no oxygen) by inundating the pyritic material, which successfully reduces the rate of acid generation, but what if that is not possible? We propose a fourth option, which involves preventing or suppressing pyrite oxidation by simultaneously adding alkalinity and removing oxygen, while, coincidentally, precipitating dissolved contaminants out of the ARD. Moreover, all of this can be accomplished inexpensively, using agricultural, municipal, or industrial waste.

The reader may be familiar with the established passive alternatives to active chemical treatment and the creative use of bacteria and limestone to neutralize ARD and precipitate contaminants. Although not always an option, passive treatment is a technology that has evolved from simple ponding of water in constructed wetlands to treat near-neutral pH coal mine drainage into a fancy toolbox of options that are combined and strung together, as appropriate, on a site-specific basis to neutralize ARD and remove a wide ar-

ray of contaminants. Some contaminants, such as iron, aluminum, and manganese, are typically removed as oxides or hydroxides, which requires an aerobic environment, while others, such as copper, lead, zinc, sulfate, uranium, and selenium, can be removed by creating an anaerobic, reducing environment. To accomplish the latter, an appropriate mixture of organic materials (e.g., composted waste, wood chips, and straw) is placed in a basin and the contaminated water is directed to flow through it. Natural bacteria sequentially remove (consume) the oxygen and then extract energy by reducing the nitrate, then the iron, and then the sulfate. Sulfate reduction is the opposite of pyrite oxidation, generating alkalinity and sulfide; the sulfide reacts with the metals dissolved in the ARD and precipitates them as sulfides, thus closing the loop by which they entered the environment. The "basin" is commonly known to passive treatment practitioners as a biochemical reactor or BCR.

We can apply what we have learned by constructing anaerobic wetlands and BCRs to create a reducing environment in the pyritic waste rock and tailings, forestalling pyrite oxidation by altering the aerobic environment into a reducing one and, in addition, treating the ARD that has formed in place. This has been suggested in the technical literature for at least 30 years and we feel that it is time, given what we now know about creating reducing environments in ARD treatment systems (i.e., BCRs), to make this approach a reality. Like passive treatment technology, the approach will have to be tailored to the site and the geochemical characteristics of the ARD-generating waste. This would entail evaluating various options to develop sustainable conditions that both suppress the undesirable acidophilic bacteria that support ARD generation and displace or replace it with a microbial community that can be maintained by the natural processes inherent in a typical revegetated cover. Just as the mining industry typically perfects a process flow sheet in a mill or processing plant,

it makes sense to start with small-scale field tests and then to scale up the approach, but we are confident that this method will prove to be a relatively low cost option at many sites. Given the ease with which oxygen can penetrate waste rock, the technique should be perfected first at ARD-producing mine tailings and coal refuse (the reject material from a coal beneficiation or "washing" plant) sites.

Despite several successful small-scale and pilot-scale tests, there have been very few (perhaps only one) full-scale tests. For example, WISMUT (a former East German uranium mining company that is now responsible for reclaiming all of Germany's old uranium mining operations) saw dramatic decreases in dissolved copper, iron, zinc, and sulfate in some large lysimeters tests it conducted. Dr. Matt Lindsay, now at the University of Saskatchewan has published some great research that he did while at the University of Waterloo using this approach on a somewhat larger scale at a site where the drainage was circumneutral but contaminated. The approach appeared to be quite successful. And the Western Research Institute (WRI) successfully injected expired milk products into "hot spots," detected using surface geophysics, at the Sesquatchie Coal Mine in Tennessee, which apparently improved water quality at that site, which was slightly acidic. The goal of adding the waste milk was to encourage the growth of a protective biofilm on the pyrite grain surfaces that would out-compete the acidophilic community. Positive effects are still being observed seven years after the application event in 2007. However, we know of no examples (published or unpublished) where the technique has been tried (intentionally or unintentionally) at mine sites that are producing ARD, although we have heard anecdotal tales of success.

Implementing the concept on a large scale will depend on whether or not the waste site is revegetated. For sites with a healthy vegetative cover, surface applications would be limited to liquid

organic matter that does not harm the cover and percolates readily, and it should be realized that much of the dissolved carbon will be consumed before the solution reaches the pyritic material, greatly diminishing its long-term effectiveness. Injecting the material, as WRI did, may be a more attractive option at sites that have already been reclaimed and revegetated.

Liquid ARD-suppressing solutions may include but are not limited to:

- Partially-digested sewage with elevated dissolved organic carbon from a man-camp or nearby community (which would probably be ready to provide it for free),
- BCR effluent (unaerated, pH = 7.0), which is typically already reducing and contains alkalinity, dissolved organic carbon, sulfide ions,
- Agricultural processing waste solutions, and
- Waste dairy products (as was done by WRI).

For unvegetated mine waste, more-solid organic matter such as municipal biosolids, sugarcane bagasse, composted animal manure, wood chips, sawdust, and de-inking residue from paper recycling may all be appropriate.

Obviously, more work is necessary. Since each site is different, in terms of contaminants of concern, degree of acidity, terrain, and locally available biodegradable waste materials, pilot-scale tests will always be necessary. These

tests may be simple, barrel tests, or larger and more elaborate simulations, but they should be constructed to simulate the various options, not just the available organic waste combinations.

Many conflicting design considerations will need to be weighed at each site. To adopt the medical analogue, we must first do no harm. It is possible that some ARD prevention processes could remobilize undesirable constituents like arsenic adsorbed to precipitated ferric hydroxide and manganese. Potential problems such as these should be revealed by the small-scale tests. Optimal placement of the organic waste has to consider whether, and if so, where, oxygen can enter the pyritic material. Little will have been accomplished if the contaminants removed from the water are subsequently exposed to oxygen and remobilized. So, either the site has to be designed to prevent reoxidation of the precipitated sulfide minerals or long-term addition of organic waste material will be necessary. Although the latter seems unpalatable, it should certainly be less expensive than perpetual addition of lime, and may very well be appropriate at some sites. However, preventing significant oxygen entry into the wastes will be quite feasible at some sites, and maybe at many sites, if the sulfide minerals can be induced to form a coherent mass.

The biggest challenge may materialize once it is clear which approach will work at a given site and how best to apply the organic waste materials to very large volumes of mine waste. Here, the mining industry needs to re-engineer familiar processes to a different purpose: suppressing pyrite oxidation. It is time for applied research in this area. *

Robert Kleinmann is a Senior Mining Technologist at CH2M HILL Ltd. He also serves as Editor-in-Chief of the journal, *Mine Water and the Environment*, and is vice-president of the International Mine Water Association. He has worked in the mine water remediation field for over 30 years and is well known for his groundbreaking research and innovative contributions in controlling acid rock drainage.

Jim Gusek is a Senior Engineer with Sovereign Consulting Inc. He is based in Lakewood, Colorado and is a registered professional engineer. He specializes in mine closure design, mine land reclamation, and the design of passive treatment systems for mining-influenced water. He has a mining engineering degree from the Colorado School of Mines.

CH2M HILL Ltd serves clients in the mining industry with a broad set of services available throughout the life cycle of a mine. These services range from permitting and compliance for new and expanded mines, to mineral processing and metallurgical engineering, water and waste management and treatment, through reclamation and restoration services needed during mine closure. CH2M HILL Ltd specializes in identifying strategic solutions to mining challenges that save time and money.

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Reducing Operating Costs in Cyanide Detox Circuits

By Ben Adaszynski, Gekko Systems



Cyanide is used throughout the mining industry as a method of extracting gold and silver from ore by dissolving it into solution. Gold and silver are then recovered from solution typically through carbon absorption followed by electrowinning. The barren slurry exiting leaching circuits contains toxic levels of cyanide, which is required to be destroyed prior to discharging the waste stream to tailings storage or the environment. To ensure that the waste stream is detoxified to an acceptable cyanide level the “detox” circuit is commonly designed, often in the absence of reliable test work, with significant “fat” leading to higher than necessary operating cost. Furthermore, a lack of experience at the operational level often pushes operating costs even higher. The good news is there is often plenty of room for improvements and cost savings that directly benefit the bottom line. Targeting these benefits is what Gekko has done since partnering with Randy Agius in 2012. Randy helped in the development of the cyanide detoxification process at INCO and has many years of experience designing and troubleshooting cyanide detox circuits.

The most common method for cyanide detoxification is to oxidize cyanide to cyanate, which has a significantly lower toxicity. The most common process to treat slurries uses a combination of sulphur dioxide (SO₂) and oxygen, typically provided by compressed air, and commonly referred to as the INCO Process. The Caro’s Acid process is the most common alternative. Here sulphuric acid and hydrogen peroxide are combined to produce a powerful oxidizing agent, however the high reagent costs and the transportation and storage of the dangerous goods often makes this option less appealing on larger projects.

The SO₂/Air Process was developed by INCO Ltd in the 1980s for the oxidation of weak acid dissociable (WAD) cyanides by SO₂ and Air in the presence of a soluble copper catalyst. Iron cyanides are removed by forming insoluble

complexes of copper-iron-cyanide. Common sources of SO₂ include sodium metabisulfite, liquid SO₂, gaseous SO₂ produced by burning elemental sulphur, and where permitted, ammonia bisulfite. While the theoretical addition ratio is approximately 2.5 gram SO₂ per gram WAD cyanide in practice the addition ratio is significantly higher due to other chemical side reaction. This is where things get tricky as there is no dependable formula to determine the optimum-dosing ratio of SO₂ and other reagents or the required amount of retention time in the detox reactors. The only way to determine these operating parameters is through testwork; the interpretation of which can be difficult to translate into practical requirements without prior experience.

Also, test work does not end once the plant has been commissioned: ongoing testwork may be needed as new areas of the ore body are mined, the plant goes through an expansion, becomes International Cyanide Management Code Compliant, or the cyanide discharge limits change.

Operational issues can be just as significant and costly as overlooked design faults. Onsite optimization is less about chemistry and more about procedural and mechanical issues. A lack of training or understanding often leads operating at higher than required chemical addition rates. Simply adding more chemical in response to poor performance usually is not the answer and may make matters worse by further unbalancing the reaction. Cyanide destruction requires balancing several parameters; pH, oxygen, SO₂, and copper catalyst. If the balance is lost the reaction can stop and then no destruction occurs. Optimizing the cyanide detoxification process results in a win-win scenario where the operating cost is reduced and the cyanide discharge target is consistently met or exceeded.

In addition to the direct financial savings of a well-run detox circuit there are other benefits to be realized for the mining company and the community. For the metallurgist, the tailings

dam is a source of plant water and keeping residual cyanide low safeguards recovery in a flotation circuit or biox plant. The plant manager has peace of mind that this area of the plant doesn’t require their constant attention. For the environmental officer there is the assurance of compliance with permits and company policies. The CEO needs a license to operate and grow the company. Any mining company requires permission to operate from all stakeholders – the community, government, workers and shareholders, and meeting cyanide discharge levels is a big part of that licence. New development projects are easier to permit when existing operations have a clean record of environmental compliance. The value for the local community is obvious; they have entrusted us with looking after their water sources. We have a responsibility to current and future generations to minimize the impact of our activities on the environment through conscientious design and operation of the whole mining process, including the plant detoxification circuit. •

***Ben Adaszynski** is a graduate from the University of British Columbia where he studied Chemical Engineering. Ben joined Gekko in 2011 servicing Gekko’s North American market. In 2012 Gekko partnered up with Randy Agius, a world expert on cyanide destruction, to form the Gekko Global Cyanide Detox Group. Over the last 18 months Ben has worked closely with Randy to learn from Randy’s over 30 years of experience.*

***Gekko Systems** is an Australian based mining service and equipment supply company with a focus on gold and silver. Gekko started out with the Inline Pressure Jig for continuous gravity separation in 1996 and a year later expanded from there to the Inline Leach Reactor for intensive cyanidation of high grade gravity gold concentrates. Gekko has since moved into supply of complete modular plants and was awarded the Mineral Processing Plant of the Year award for the Ballarat Goldfields Plant in 2006. With the expansion in equipment supply Gekko’s service offering also expanded and now includes a full metallurgical and assay lab, modular plant design, auditing and optimization of gravity circuits. Most recently Gekko partnered up with Randy Agius, a world expert on Cyanide Destruction to form the Gekko Global Cyanide Detox Group.*



INTERVIEW WITH

Peter Latta

MANAGER-NORTH AMERICAN OPERATIONS
GEKKO SYSTEMS

Could you provide an overview of the services that Gekko Systems offers?

Gekko began as a traditional equipment supply company, but soon expanded its offerings by introducing a modular concept allowing the company to offer significant savings on capital investment, installation and operating costs. These flexible modular plants are engineered to deliver super-efficient, environmentally friendly recoveries, by cleverly combining Gekko's gravity pre-concentration, flotation and intensive leach technologies. This shift to a more comprehensive platform began with engineering modules around our equipment and has evolved into a full modular plant supply. The most recent example is the plant currently being designed, engineered and installed at YTC Resources in New South Wales, Australia. Gekko continues to develop innovative flow sheets, packaging our equipment in a cost effective manner. Mining

companies, in response to market conditions, require fast tracked production and one way to do so is to supply predesigned modules, tested in the factory and shipped to site. This dramatically decreases the production period and costs associated with design.

Gekko takes three factors into consideration when developing a project: lowest energy consumption, lowest resource use and the smallest environmental footprint. How are these factors incorporated in practice?

A major focus for Gekko is to provide significantly reduced energy consumption plants through innovative flow sheet design. This focuses on removing excess material before processing, to save on energy costs, called pre-concentration and Gekko is at the forefront of this innovative push in flow sheet design. Our company has recently expanded into cyanide

destruction. Environmental regulations are extremely stringent when it comes to the discharge limits for cyanide use in mining. In turn, Gekko has partnered with one of the world's leading experts in cyanide destruction and is now offering to optimize cyanide destruction circuits.

Gekko recently won Mining Magazine's Award for Environmental Excellence. What makes your company stand out?

Gekko has a focus on delivering added value and high productivity to mining operations. The company is able to deliver a range of equipment, processes and services designed to provide the operations with significant step-change benefits. What separates Gekko is the company's willingness to push the technological envelope with regards to mineral processing. Gekko looks to improve the efficiency of mine sites and the bottom lines of our customers. •

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'The Gekko Team is not constrained by conventional technologies and a considerable strength is their ability to customise a design specifically to suit the ore and maximise recovery'

- Mark Davies, LionGold Corp



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INTERVIEW WITH

**Bob
McCarthy**

GENERAL MANAGER – AMERICAS
SNOWDEN MINING INDUSTRY CONSULTANTS

Snowden Mining Industry Consultants (Snowden) was established in 1987 with the purpose of providing a comprehensive set of solutions to exploration and mining companies, as well as legal and financial institutions related to the industry. Could you please provide us with an introduction and an overview of your company?

The company began by servicing the mining sector in two areas that have been the pillars of our business: resource estimation and corporate advisory. Snowden has since added more disciplines including mining, geotechnical and metallurgical engineering. The company found that the market had not developed adequate technological tools and so Snowden began to develop its own suite of software solutions. There are several instances in which the company developed a product or software for its consultants or a single client that was subsequently commercialized. In addition, the company has also developed training services. While possessing capabilities in all of consulting, technology and training has been a differentiator for Snowden, recently these have been combined in Snowden Solutions to provide unique value propositions to clients.

It appears that you provide a comprehensive suite of consulting services. Could you please provide our readers with more background into your training programs and Snowden Solutions?

In addition to developing strong technological capabilities, Snowden started training services to make up for a gap in the market. The company developed a strong series of courses focused on resource estimation, mining, and geology; a number of which are now available in a webinar format.

Solutions are another area in which Snowden is looking to expand. One of the Snowden Solutions, Universal Reconciliation (UR),

was initiated in 2012 as a pivotal study with one of our clients. UR addresses the full mine value chain, tracking the flow of metal from Mineral Resource through to saleable product. Opportunities for improved metal modeling and recovery are identified and quantified such that reconciliation, supported by a dashboard application like Snowden's award-winning Reconcilor software, can become a strategic continuous improvement tool.

The fall in commodity prices and the current economic downturn have affected the demand structure and behavior of many companies. Was Snowden Solutions conceived in reaction to the economic climate and has demand for your services altered in any way?

There has been a trend in the market towards efficiency savings and the maximization of asset value. Unless a technology has strong business drivers it is not likely to be adopted by a company. As consultants we face the challenge of convincing our clients of the value that we can provide. As mentioned with UR, Snowden first identifies efficiencies and inefficiencies that translate into dollar values. These can be substantial, such as in a recent engagement, where we identified tens of millions of dollars in annual value mostly through enhanced metal recovery. Things could stop there, but to ensure recommendations stick and new opportunities are discovered, Snowden can deploy Reconcilor to monitor variances between models, designs, forecasts and measurements. Variances mean continuous improvement opportunities. This is all accompanied by training in the best practices of reconciliation and if acquired, in the use of Reconcilor.

Another significant solution provided by Snowden is Resource Governance (RG), which consists of a diagnostic review of the

client's corporate and site processes around Mineral Resource and Reserve management and reporting. These processes are compared to best practice for potential recommendations. Compliance to these processes is also assessed. Again, a software tool, in this case Regulator, can codify the entire resource/reserve management and reporting process ensuring security, transparency, auditability and confidence in this all important aspect of corporate governance. Two forms of the software are currently being developed. The first, an enterprise version, is geared toward larger companies, with the second, a cloud based solution, focused on smaller clients. The former leverages a company's standard processes, while the latter is more prescriptive based on Snowden's interpretation of best practices.

Snowden also provides a number of educational courses for those already involved in the mining industry. How are courses such as mining for non-miners and geology for non-geologists beneficial for those involved in auxiliary capacities?

Snowden offers courses for two student types. The first is the mining professional wishing to build upon their formal education and experience. Snowden courses are recognized for their high quality and practical application. We fill a void that sometimes exists between what universities teach and what industry needs.

The second student type is the non-mining professional to which you refer. For these individuals, we provide basic courses on concepts and terminology to allow them to function in their environment knowing what those around them are doing or saying. They become more effective in their roles when they are more comfortable with the business of mining. •

Quality Control

Mineral testing and processing

An important facet of the mining process is knowing what is actually in the ground. The grade of mineralization at a project has important implications for its net present value for those looking to sell and for companies looking to mine, on project economics. Met-Solve Laboratories takes samples from projects as far away as Europe, Asia, the Middle East and South America. In order to differentiate itself from the competition, Met-Solve's president Ish Grewal has leaned on his expertise in implementing centrifugal gravity concentrators. "Many years ago I developed the mathematical model to determine the optimization, test work and integration of gravity into milling operations, which I continue to use to this day," said Grewal. This specialty, among the others in hydrometallurgy and scrubbing services, provided by the company has created international demand for Met-Solve's mineral and metallurgical testing solutions. "There are times when 90% of our samples come from

outside of North America; they are sent by mining companies of all sizes."

Moving forward the company has recently opened a new assay lab called Met-Solve Analytical Services, which is looking to expand its sample prep services.

BASF Canada's solution group provides chemicals for separation in mineral processing. To help guide its clients to make the right choices in chemical products, BASF has unveiled its total systems approach. Pablo Mendez, account manager for mining solutions, said: "The total systems approach is still being perfected as we work to better help our clients and continually grow."

The company works hand-in-hand with clients to identify where its chemical solutions can be applied.

Tenova Delkor Global helps its clients procure the right filtration, sedimentation, clarification, screening and flotation products, and has been doing so for over 35 years. The in-

Courtesy of Met-Solve Laboratories



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teraction begins at the development stage of the project and continues through the life of the mine. "At that stage our focus is primarily on defining the type of equipment required and the preliminary cost estimates for our service," said David Minson, group managing director. "Thereafter the project moves into a more detailed engineering phase and Tenova Delkor works with engineering companies to develop the specifications of the equipment and contract execution methods."

Combining heavy mineral equipment and thorough mineral analysis is RMS-Ross Corp, headed by president Scott Plummer. The company, which manufactures a line of heavy mineral processing equipment, puts its clients in contact with special mineralogical laboratories so that they obtain the most professional and comprehensive test results. "Target metals, liberation points, screen size analysis, associated metallurgy...this allows our clients to focus on other aspects of mine development and assists our engineers in the design of the most suitable recovery system for their specific project," said Plummer.

Two RMS-Ross products which Plummer is particularly proud of are the DEROCKER and the RMS Modular Skid Mounted Circular Jig Plants. The former is meant for mining projects with very large rock and boulder. "The DEROCKER creates a sine wave pattern on its heavy duty sealed pin and bushing articulating deck, which rolls the large rock and boulder over repeatedly while using high pressure spray water to remove all the fine gold and other target metal values which adhere to the surfaces..."

RMS-Ross also manufactures Modular Skid Mounted Circular design mineral jigs, which unlike the standard square and rectangular design jigs, rapidly increase in surface area, from the center feed point out to the discharge area, allowing for a dramatic slowing of the process flow and a better opportunity to retain the fine heavy mineral values. They are also designed very heavy duty and virtually bomb proof, while being designed to be extremely easy to operate, both of which are a huge advantage in the remote areas where many mine projects operate. *

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INTERVIEW WITH

Ish Grewal

PRESIDENT
MET-SOLVE LABORATORIES INC.

Met-Solve Laboratories Inc. is a mineral and metallurgical facility providing a wide range of testing services to the mining industry. Could you start by providing a brief overview of the company and its history?

Met-Solve Labs was established in 2006 as a joint venture between Sepro Mineral Systems Corp. and Metals Finance Ltd. Three years ago, Sepro bought out the other half and made the facility into a subsidiary, while Metals Finance consolidated back to Australia. Our initial objective was to conduct test work for projects involving Sepro, Metals Finance and outside clients. The most commonly requested services are gravity concentration, leaching for gold, and flotation methods for various mineral systems.

Could you talk us through the dynamic of your relationship with Sepro?

Met-Solve treats Sepro like any other client, though there are some projects on which we work jointly. If Sepro is working on a project that requires test work, they will typically ask us to work directly with the client. Met-Solve also does a lot of work completely independently from Sepro and all our data is kept confidential from them: this is important because lots of our clients are public companies. Met-Solve Labs does its own marketing for clients not sent by Sepro. Of course, there are benefits in sharing overheads and working on projects requiring both companies' expertise.

You are located in Langley, close to Vancouver, one of the world's global mining hubs. Who are your typical clients and where do most of your samples come from?

Our samples come from everywhere: from people exploring within the province, and as far away as Europe, Asia, the Middle East and South America, with the exception of Russia due to their 'sovereign soil' law. It is an ad-

vantage that Sepro is such an internationally diverse company and able to make our name known in the foreign market. There are times when 90% of our samples come from outside North America; they are sent by mining companies of all sizes.

The mineral testing market must be a very competitive space. What differentiates Met-Solve Labs from the competition?

Our association with Sepro combined with my own background means we truly understand how to implement centrifugal gravity concentrators. Many years ago I developed the mathematical model to determine the optimization, test work and integration of gravity into milling operations, which I continue to use to this day. Many laboratories have not developed their centrifugal gravity concentration testing to this extent. A second area of expertise is in hydrometallurgy, where my own background lies and which not every metallurgical lab chooses to carry out. A third is test work on sizing of scrubbers: giant cylinders for scrubbing down clays. A fourth unique capability, which we recently added, is in dense media separation using a multi-flow separator. This is a classic unit but Met-Solve Labs and Sepro have developed a version which will be called the Condor.

How has demand for your services been impacted by the downturn?

Met-Solve Labs has been noticeably impacted by the downturn. I can feel the industry's pulse from the number of proposals we put out and I noticed a real slowdown in demand around last September. By the end of the year work had really fallen off – Christmas season usually has some effect but this was more than normal. A lot of the small companies we spoke to said they just could not raise capital and therefore had to limit or defer test programs. January and

February remained relatively slow but we have been busy since March.

You have recently opened a new assay lab called Met-Solve Analytical. What are the main services offered there?

Our new assay lab, Met-Solve Analytical, currently provides sample preparation, fire assay, trace-metal analysis by ICP-OES and ICP-MS, and a variety of other analytical services for clients and Met-Solve Labs. Like us it will operate independently of both Sepro and Met-Solve Labs, treating both as it would any other client. However, there will be some synergies; they offer a full service solution to clients involved in exploration to more advanced stage projects, which is a valuable service for many of our own clients as well, and our geographical proximity is an advantage whenever we need analytical work done. The reason for setting up the facility was that there had been a consolidation of assay labs and when the one we used was bought out, its service went down and its costs went up.

How will Met-Solve Labs grow in the next three years under the Sepro umbrella and what will be the main topics of conversation if we return in three years time?

Met-Solve Labs will continue to do the same type of work but we have the ability to expand and hope to grow to at least double or triple our current size. We have recently developed the Met-Solve Analytical Table, a product that allows for precision analysis of the gravity concentration response in a small quantity of ore, and we will continue developing other innovative testing tools and capabilities within our lab in order to promote growth. There might be incremental add-ons to our capabilities although I do not think we will be opening any more labs in the near future. This market will eventually recover; it is just a question of when. •



INTERVIEW WITH

Scott Plummer

PRESIDENT
RMS-ROSS CORP.

RMS-Ross prides itself on providing client-specific solutions, utilizing a step-by-step process. Could you please talk about this process and how it benefits your clients?

Our clients are primarily small- to medium-sized mining companies globally, many of whom are in possession of a great prospective mine property, but require assistance and expertise in putting the project together. The issues they encounter are the need for heavy mineral equipment and thorough mineral analysis. We therefore assist them in getting into contact with the specialized mineralogical laboratories, so that they obtain the required professional and comprehensive test results. Target metals, liberation points, screen size analysis, associated metallurgy. This allows our clients to focus on other aspects of mine development and assists our engineers in the design of the most suitable recovery system for their specific project. As well, some companies do not look at all of the potential minerals present on their mine project, if they are focused on the identification and/or recovery of certain metal/mineral targets. We therefore also aid them in identifying additional minerals and metals that can become additional profits centers from their deposits that they might not have been looking for originally. Examples are some mining projects in Africa where their analysis had all been precious metal focused, where we were able to determine that there were several times that value in recoverable tantalum and niobium and other transitional metals and rare earths that the companies had never thought to have analysis completed for.

It is encouraging to know that you help your clients establish contact with specialized laboratories in the Vancouver area. Could you please provide us with an overview of the products you supply subsequent to this process?

The DEROCKER was developed primarily for alluvial placer mining projects with very large

rock and boulder. This made the ground virtually impossible to mine. The DEROCKER creates a sine wave pattern on its heavy duty sealed pin and bushing articulating deck, which rolls the large rock and boulder over repeatedly while using high pressure spray water to remove all the fine gold and other target metal values which adhere to the surfaces of the larger rock. This allows a mine to not only process heavily bouldered ground which will destroy most sizing/scrubbing process systems, but allows for the recovery of the highest values possible. The Ross Box was the first high volume sluice box system able to recover vast amounts of very fine gold. Unlike other sluice systems it was revolutionary in that there are several tiered primary recovery zones in the lower feed deck, which cause the huge volume of slurry to stop, boil and drop repeatedly in the upper area of the sluice, allowing for the recovery of the vast majority of fine gold values before it even enters the mine recovery channels, which becomes secondary recovery. RMS-Ross also manufactures modular circular design mineral jigs, which unlike the standard square and rectangular design jigs, rapidly increase in surface area, from the center feed point out to the discharge area, allowing for a dramatic slowing of the process flow and a better opportunity to retain the fine heavy mineral values. They are also all designed very heavy duty and virtually bomb proof, while being designed to be extremely easy to operate, both of which are a huge advantage in the remote areas where many mine projects operate. These are some of the recovery equipment that have been developed through our ongoing research and development programs.

The effects of low commodity prices and the global financial crisis have led many companies to change their procurement strategies. How has demand for RMS-Ross' products changed since 2008?

Following the economic meltdown some of the companies we were working together with at the time had their companies delisted off stock exchanges and did not survive as project financing vaporized. This became a particularly challenging time, felt by all companies across the industry. Our clients now appear to be focused on additional revenue streams, a previous oversight by many companies. RMS-Ross has now seen increased demand for our equipment in Africa, South America and Australia, with a focus on an increasingly wider variety of minerals. Our global reach can be credited to the fact that the company can assure the reliability and robustness of our products in comparison with those from a number of other developing nations who had been providing equipment at a lower price point. This is of paramount importance, as periods of inactivity can be very costly, particularly in remote locations.

RMS-Ross has a comprehensive global networking, having served clients in over 60 countries. How does your company's international network function and what is RMS-Ross's overall strategy for increasing its international presence?

RMS-Ross has been in existence for a considerable amount of time and has interestingly enough, had word-of-mouth advertising from customers be perhaps the most important aspect of our company expansion and development.. The robustness and longevity of our equipment has led to many referrals from across the globe. The company is looking to establish a stronger international presence in order to aid in the development and design of systems required to bring mines into production. In practice, our staff often perform initial site visits to ascertain the needs and logistics of a project, which together with the mineralogical work, assists in the design and customized development of the mineral processing and recovery system. •



INTERVIEW WITH

Bert Smith

MINING MANAGER AND PRINCIPAL MINING ENGINEER
AMC CONSULTANTS (CANADA) LTD

AMC Consultants was established in 1983 and has since worked on over 6,500 projects in 100 countries as an independent mining consultancy. Could you please provide an introduction to your company?

AMC operates seven offices, including two in Canada located in Vancouver and Toronto. In Vancouver there are 25 consultants, representing a significant percentage of the company's total of about 150 consultants. The bulk of our employees are in Australia, with our head office being in Melbourne. Each office is generally mandated to cover a particular global area. The mandate in Vancouver is largely North and South America but, because of the wide-ranging interests of our clients, we work on projects throughout the world.

AMC focuses on mining project and operations work in mining engineering, geology, geotechnical engineering, mineral resource and mineral reserve estimation, mine optimization, backfill and ventilation. Our focus in mining engineering ranges from major to junior companies with fledgling or partially developed projects, or with actual operations. In the project study capacity we may assist clients with preliminary economic assessments, pre-feasibility studies and feasibility studies. For operating mines, we may conduct optimization studies or assist with mine design, for example. In addition AMC undertakes valuations, evaluations and due diligence. This has been of particular importance of late as mergers and acquisitions are coming more to the fore.

Given lower commodity prices over the last year, how has demand for your offerings changed and in turn, how have you adapted in order to meet your clients' needs?

In comparison to our work in 2011 we are down around 30% in terms of the total number of projects. Our work in British Columbia has been hit hard, and there we are down by about

50%. In the last few months there has been a notable upswing with regards to requests for proposals and the number of projects that we have won. We have chosen to focus on fostering and nurturing existing relationships, while pursuing other opportunities through increased marketing efforts. With these tough conditions AMC has looked at all the possible avenues to provide our customers with cost savings. In the past few months AMC has also had some significant success in obtaining work in Peru, with project activities focusing on pre-feasibility and feasibility studies, trade-offs and resource and reserve estimation.

You mention a number of patterns that AMC has seen over the past few months, including the increase of work in Peru. Are there any other distinguishing factors associated with the work that has continued?

For the most part companies with good projects have been able to obtain funding. Established companies in particular have been very keen on ensuring that their cost projections are realistic. AMC looks at the most appropriate mining methods and how they are applied to a given mineral resource. One of the questions that often arises is how the better grade in a deposit can be extracted earlier in the life of the mine, to offset capital costs and improve NPV. This type of strategy initiative is fundamental to our clients and to our business and with market conditions has become increasingly important.

Is it safe to theorize that these initiatives are largely taken by junior companies that are looking towards the future?

This is true, although it is perfectly natural for any company, junior or senior, to look to make its project as capital efficient as possible. In the early stages of a project it is reasonable to be optimistic about the future, but it must be tempered with the realism of what the project will

ultimately cost. It has always been a balance for junior companies, particularly because they are looking to turn their deposits into lucrative assets. This balance has been between portraying the project to its best advantage and ensuring the realism that investors and other interested parties are concerned about; is it a truly valuable project that is going to make money? We are seeing companies increasingly focused on ensuring that projections are as close to reality as possible.

Now looking at the international perspective, you mention that your company has grown its focus in Peru. Is this the only jurisdiction where AMC has seen an increase and where do you see the company turning its focus in the years to come?

AMC will continue to have a strong focus on Latin America. We have done a lot of work during the past few years in Mexico, though it has slowed down to some degree in parallel with the global downturn. That being said, there are enormous opportunities in Mexico. The Mexican clients we deal with tend to be very progressive in their attitude and they strive to have the best practices in the world. Once economic aspects stabilize and the inevitable demand for metals returns to something like 2011 levels we anticipate an increase in our Canadian workload, and in international opportunities. In addition to projects in British Columbia we also have a number of initiatives across the country, with a specific focus on the northern territories.

When Global Business Reports returns in two to three years' time what will be the topics of conversation?

AMC hopes that the industry will see a strong recovery while maintaining its focus on realistic projections. Inevitably, we will see many new projects in the mining sector and hope that it will result in an increased demand for AMC's services. •

Reduce and Reuse

Helping miners to control costs

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Given the increasing remoteness of mine sites in British Columbia and the province's frigid temperatures, energy consumption is a focus of mining companies in the province. In some cases, this can mean optimizing mine designs to get more for the energy expended. In other cases, it means offering cheaper fuels and cost-saving solutions. In the current climate, wherever costs can be saved or recouped, there will be a company offering that service.

Superior Propane has worked since 1951 to provide resourceful energy solutions for mine heating and equipment, camp heating and cooking and end-to-end equipment maintenance service programs. As Canada's only national provider, Superior Propane has begun providing customers with cost-saving solutions. "First, we have started to offer blended diesel fuel and propane as a way to create a more cost-effective and environmentally friendly option for rolling stock and stationary engines. Second, we help customers convert their gasoline or diesel powered mining fleets to propane to reduce fuel costs," said Carl Bitonti, senior mining consultant, British Columbia/Yukon.

Superior Propane is looking to take advantage of auto propane, which is making a strong come back in both the U.S. and Canada as a viable alternative transportation fuel.

Providing back end services is another family established company, ABC Recycling. Headed by David Yochlowitz, CEO, the fourth generation company celebrated its 100th anniversary in 2012. In order to cut costs and reach the company's various locations across British Columbia and one in Alberta, the company uses its 105 rail cars for shipping scrap metal. Yochlowitz is credited with turning ABC Recycling around, beginning in the late 1980s. "ABC diversified its portfolio to include non-ferrous metals and developed our in-



rastructure and facilities to accommodate scrap from Alberta and Saskatchewan,” said Yochlowitz.

Today, the company performs daily bin and special scrapping services to Teck Resource’s Highland Valley copper open pit mine and is also involved in special demolition projects at end-of-life mill facilities at the mine as well. “The company also performs service work with other mine sites that have different and specific requirements, as shown [with our] work at NewGold’s New Afton gold mine,” said Randy Kahlon, manager of business development, procurement and sales. “Our goal is to establish a benchmark for our industry, [to] be market leaders and furnish a comprehensive solution to the mining industry’s

scrap problem.”

Pacific Blasting and Demolition was founded in the mid-1950s as a father and son blasting operation and has grown into a substantially large construction firm. Given the company’s history and its substantial growth within the mining sector over the 15 years, some its of contracts are now made on a simple handshake. “Our personal and professional relationships have allowed Pacific Blasting and Demolition to minimize our clients’ risks as well as our own; a factor which has allowed us to become a premier provider of blasting and mining services,” said Ron Woolf, vice president of Pacific’s blasting division. Standing out amongst its peers, the company has focused on high wall steepening, rock

slope stabilization, complex drilling solutions and a number of other services. As part of the Pacific Group of Companies, Pacific Blasting and Demolition has had the malleability to adapt to the recent fall in commodity prices. “When certain sectors experience periods of slowdown, we are able to shift our employees into other areas. For example, our construction service has seen a tremendous increase in demand,” Woolf said.

In the near term Pacific Blasting and Demolition is positioning itself for a significant expansion, with a special focus on the mining industry. “As part of this growth model the company is looking to expand its global reach into additional national and international markets,” Woolf said. •

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INTERVIEW WITH

Carl Bitonti

SENIOR MINING CONSULTANT, BRITISH COLUMBIA/YUKON
SUPERIOR PROPANE

Superior Propane provides heating and operating solutions in the areas of mining exploration, development, construction and production. Could you introduce your company to our readers?

Superior Propane is the national leader in the Canadian propane industry. We have a proven track record with every aspect of the mining business: from exploration to development and to production. Since 1951, we have partnered with some of the biggest names in the industry, coast-to-coast to provide them with resourceful energy solutions for mine heating and equipment, camp heating and cooking, design, installation and start-up commissioning, customized pricing and leasing and end-to-end equipment maintenance service programs. Our name stands for consistent service, secure supply, safety, health and environmental excellence and complete energy solutions. We have a dependable national supply, installation and distribution network backed up by over 1,400 employees and 180 locations. Safety is a priority for us and there is no wonder why. As Canada's only national provider of propane we are touching the lives and businesses of over 160,000 customers across Canada.

What are some of the uses of propane and how is Superior Propane providing innovative solutions to deliver better services to its clients?

Propane is used for mine-air heating, camp heating and cooking and for powering equipment. We're bringing innovative energy solutions to our mining customers in two ways. First, we've started to offer blended diesel fuel and propane as a way to create a more cost-effective and environmentally friendly option for rolling stock and stationary engines. Second, we help customers convert their gasoline or diesel powered mining fleets to

propane to reduce fuel costs. Our national network of partners helps us provide a complete auto propane conversion package in most Canadian provinces. They handle the assessment, installation and maintenance; we provide the fuel and install a propane dispenser on site.

Auto propane seems to be making a strong come-back in the US and Canada as a viable alternative transportation fuel. We have three locations where we are currently testing diesel-propane blend trucks, the so-called town trucks that return to site every night. Auto propane is significantly cheaper and more environmentally friendly than gasoline or diesel and helps customers save money and reduce their carbon emissions.

Given the decline in commodity prices and the global economic downturn, how has demand for your services changed?

Mining, just like oil and gas, is a critical industry for the Canadian economy that continues its path in spite of the economic challenges. Thus the demand for our services has remained relatively the same.

Clients are very interested in heating loads and are turning to Superior to provide them with end-to-end energy solutions. With stagnant gold prices, they are looking for ways to reduce costs.

We offer competitive variable and fixed pricing options and payment terms to fit their needs. Site assessments, technical and regulatory expertise, installation and maintenance services are all part of our proven strategy to protect customers from downtime. In a nutshell, we are a total energy solution provider who works with and for our customers and supports them through good and bad times.

Superior Propane has a health, safety and environmental (HSE) program, "Guardian," in

place. What are some features of this program that contribute to Superior Propane's strong safety record?

As an industry leader Superior Propane accepts its responsibility to conduct operations in a socially and environmentally responsible manner. Guardian is an HSE Management system designed to help protect the health and safety of our employees, contractors and customers and limit our impact on the environment.

Our employees are thoroughly trained in specialized safety techniques and safe handling procedures and hold all necessary licenses. The equipment at our facilities, and at our customers' facilities, is inspected regularly to ensure that it remains in good working condition at all times. No propane company is more dedicated to safety than Superior Propane.

One of Superior Propane's strategic priorities is serving aboriginal communities. Why has this initiative been such a focus for Superior Propane and what are the unique energy needs of Aboriginal businesses and communities?

Since our early beginnings we have been a long-standing, trusted energy partner of Aboriginal people and businesses across Canada. We focus on delivering enhanced value to First Nations, Metis and Inuit businesses and communities across Canada.

Our national footprint and capabilities enable us to serve their sometimes remote communities and unique needs with customized end-to-end energy solutions in an environmentally sustainable manner and within Aboriginal land use expectations. We strive to create mutually beneficial economic opportunities while supporting Aboriginal capacity-building programs for education, training, mentoring and employment. •

INTERVIEW WITH

David Yochlowitz & Randy Kahlon

DY: CEO

RK: MANAGER OF BUSINESS DEVELOPMENT,
PROCUREMENT AND SALES

ABC RECYCLING LTD

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What were the benefits of ABC Recycling restructuring in 1988?

DY: I joined the company in 1988, following a period of very high interest rates. ABC was near bankruptcy and the company's values, established by my grandfather and great-grandfather, had been overlooked. ABC released personnel who were not in-line with these values and rekindled the important policy of building long-term relationships. ABC diversified its portfolio to include non-ferrous metals and developed our infrastructure and facilities to accommodate scrap from Alberta and Saskatchewan. Today ABC handles the biggest volume of non-ferrous metals in Western Canada. In 2005 we made a conscious business decision to increase our steel intake and our facilities now average over 20,000 mt/m; making us highly competitive. One of our core accounts in Terrace is Rio Tinto and in Kelowna, Teck Resource's Highland Valley Copper.

Which of your services are directed at the mining sector?

RK: ABC performs daily bin and special project services to Teck Resource's Highland Valley Copper open-pit mine. There is a large amount of scrap produced there on an annual basis, enough to justify the need for an ABC employee to be on-site six days of the week with two pieces of specialized equipment dedicated to efficiently processing and removing the scrap for further processing offsite. ABC hauls the scrap from the site by truck, taking some material to our Kelowna facility to be processed and the rest to our Burnaby facility. ABC is also involved in special demolition projects at end-of-life mill facilities at the Highland Valley Copper mine. The company also performs service work with other mine sites who have different and specific requirements – as shown in our work at NewGold Inc.'s New Afton gold mine. ABC's disposal of by-products from mining operations complements the industry's desire to observe its environmental commitments.

What safety program do you employ for your mine site operations?

DY: Safety is our first priority; whichever site we are working on we meet and exceed any safety regulations that are in place, as we do for environmental stewardship programs. Our employees are trained in full environmental stewardship programs and carry out the due diligence required.

RK: As a sub-contractor, we are obliged to study, in detail, a mine's full safety program before any of our personnel enter

the site. We are an extension of their safety-record and very cognitive as to how we operate heavy machinery on site.

Could you provide details of the destination of the scrap via the rail networks and the importance of this network to ABC?

DY: 2008 was our peak on pricing for our recycled metals, after which pricing was depressed. ABC must stay competitive in the scrap market. Its biggest cost is logistics. Rail connections enable the company to transport from its remote facilities that produce scrap metal to the areas where the materials are required in North America. From our Burnaby facility we export containers overseas of steel and non-ferrous metals.

What is your strategy for dealing with overseas companies entering into the scrap metal sector in Western Canada?

DY: The partnerships and expansion into remote locations has enabled ABC to establish its Burnaby office as the headquarters of a vast provincial network. The strategy of the big companies entering the scrap market in Western Canada is to service from one populated central location; logistically this does not work. This central location nullifies the ability to build relationships with local communities. One of ABC's strength is its interaction with local communities, for example, supporting the Kidney Foundation of Canada through Kidney Metals, by encouraging its customers to donate some of the scrap metal revenue to the Kidney Foundation. Over three years CN Rail donated \$600,000 and invested in a program testing for kidney disease amongst First Nations, who are in a high-risk category. •



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Safety, Productivity, Quality Workmanship, Professionalism and Integrity: A Specialist Mining Contractor

By Pacific Blasting and Demolition Ltd

I have been asked many times why Pacific Blasting stands out in their field, and I believe the quick answer is summed up in the title of this article. The company has “longevity”, being in business for 60 years and has developed a solid reputation based on its safety record, high production achievements, its high quality of workmanship, performing all projects with professionalism and above all, a high degree of integrity. The key to Pacific Blasting’s longevity can be attributed to a number of factors, the most important factors being the ability to “think out of the box”, diversification, and having sound engineering and technological experience.

I started my mining career in 1967, packing timber for contract coal miners in the Crowsnest Pass and eventually graduated from Montana Tech with Bachelor of Science in Mining Engineering. My entire career has been in the mining scene either in operations or engineering, and until I came to Pacific Blasting, I generally hired contractors. So I understand what the client wants and values in a mining contractor. Since starting with Pacific Blasting approximately 15 years ago, we have expanded our mining department to include additional mining professionals and mining software to aid our clients. Our work in the mining industry has taken us nationally, throughout the US and internationally, overseas.

Pacific Blasting has worked hard to reduce workplace incidents and injuries through a progressive claims management program and commitment to preventing injuries. Through these efforts, this year we enjoy a healthy 15% discount on our WorkSafe BC premiums which we are able to pass on to our customers. In our industry in British Columbia, the average annual injury rate is 3.2 percent. This means that, on average, each year 32 out of every 1000 blasting workers had a claim for

wage loss benefits. At Pacific, we have not had a wage loss claim in over three years, meaning our annual injury rate for the period is 0%. Our commitment to safety has been ingrained throughout all aspects of business and project work and is illustrated in our involvement in the safety field. The Companies of the Pacific Group have been COR certified since the inception of the program in British Columbia and were active in lobbying WorkSafe BC to help fund the Construction Safety Association of BC (CSABC) in 2002. Our Safety Manager served on the CSABC technical advisory committee and later was a member of the board of directors until the association merged with the Construction Safety Network in 2010. He continues to serve on the Board of the BC Construction Safety Alliance (BCCSA) and was elected Chair in September of 2013.

As a contractor that provides complete mining contract capabilities as well as drilling and blasting, every once and a while, we receive calls from clients who are faced with a real challenge. The following describes one of these challenges.

A client had completed a large open pit and had a portion of a high grade gold vein system left in some benches in the highwall. The mine wished to recover the ore from the 5285 elevation down to 5195 elevation (90 vertical feet, 27.4m) however the vein system was not accessible by equipment or personnel. Also, an underground shaft existed immediately behind the vein, posing additional rock slope stability concerns. The only means of personnel access to the site was by rappelling down the highwall with ropes while equipment and materials had to be delivered by helicopter or crane. The remaining ore in the highwall from the 5195 to the 5135 elevation was easily accessible and was handled by mining personnel and normal mining equipment, once the upper ore was blasted.

Working with the mine geotechnical team, the shaft pillar was stabilized with cable bolts, rock bolts and drape mesh. All stabilization work was performed by our rock slope stabilization specialists, on the vertical highwall suspended by ropes, utilizing specialty equipment and drills. It should be noted that the crane could not reach the area that required stabilization.

The ore outline and configuration was provided by the mine staff and the blast design was performed by Pacific Blasting. Once the blast design was completed, Pacific Blasting air-lifted a special drill capable of handling the project onto the 5285 bench. It was imperative that the blasted ore be dropped to a bench immediately below the blast area so that maximum recovery could be achieved and not scattered across the pit floor. This dictated that control blasting occur, and drilling included presplit line drilling, and angled/fanned production blastholes of varying depths to the 5195 elevation were required. Production blastholes contained multiple explosive decks in order to control vibration on the highwall and the amount of throw of the blasted ore.

The rock slope stabilization component took approximately 2.5 months to complete. A total 5 helicopter lifts and 3 crane lifts were required. Most of the complex project work was performed in cold weather conditions in the winter. The first blast was the critical shot since access to the area would be destroyed. The entire zone from the 5285 to the 5195 elevation was taken in one shot, with using hole-by-hole delays. The remaining ore taken by the mine was done in 3 additional shots. Despite all the challenges and harsh conditions, the entire project was completed without any incidents or accidents and our client recovered 23,000 ounces of gold.

It is projects such as this that makes our work here so exciting. •

INTERVIEW WITH

Ron Woolf



VICE PRESIDENT – BLASTING DIVISION
PACIFIC BLASTING AND DEMOLITION LTD

Could you provide our readers with a brief introduction and overview of your company?

Pacific Blasting and Demolition was founded in the mid-1950s as a father and son blasting operation and has now grown into a substantially large construction firm. The company became more active in the mining industry over fifteen years ago and since this time our revenue base has expanded tremendously. Our relationship with the mining sector is built upon our expertise and experience, while the company's integrity has been the source of longevity in the industry. This involves being totally transparent with our costs. The result is that we have been able to enter into multimillion-dollar projects with mining firms on no more than a handshake, followed by a mutually developed contract. Our personal and professional relationships have allowed Pacific Blasting to minimize our clients risks as well as our own., a factor which has allowed us to become a premier provider of blasting and mining services, with clients throughout North America.

Pacific Blasting describes itself as a premier service provider of blasting and demolition services. Which core services are provided by the company and how has Pacific Blasting sought to stand out amongst its competitors?

Pacific Blasting owes part of its competitive advantage to Chuck Brawner, one of the founding partners of Golder Associates. Brawner introduced our company to a variety of project challenges that suited our expertise, particularly when it came to concepts of high wall control. Our innovative solutions have allowed Pacific Blasting to go above and beyond what many companies in this industry can provide. Our techniques have been applied throughout North America at a number of projects. These include high wall steepening, rock slope stabilization, complex drilling solutions and number of other services. Overall, our innovative solutions result in cost savings for our clients.. With our rock

slope stabilization experience, we also have the ability to assess the geotechnical stability of a site and offer remediation services in problem areas.

Mining in British Columbia has been adversely affected by the recent fall in commodity prices, in Gold and Copper notably, and the 2008 financial crisis who's effects we are still feeling. How has your strategy evolved to cope with this?

The Pacific Group of Companies services a number of industries and the diversification this Group has, has aided the company tremendously during this current downturn. When certain sectors experience periods of slowdown, we are able to shift our employees into other areas. For example, our construction service has seen a tremendous increase in demand, and with low commodity prices and declining market availability, we have been able to shift our focus to this area of our business. The company's flexible strategy relies heavily on our best resource, the individuals we employ. Arguably, they have the strongest skill set in North America and this is thanks to our in-house training program, which has been developed in conjunction with our local labor union. That being said, we continue to work with mining companies that are in the operational and developing stage through this cyclical downturn.

As mentioned, you have a tremendously skilled workforce at your disposal. With British Columbia facing a large shortage of skilled labor how has Pacific blasting managed to attract and retain the right individuals?

Historically, Pacific Blasting has never had any issues with attracting and retaining skilled workers. This is thanks to the fact that we are stable, have proven longevity, and have a fantastic reputation. As a result, we have been able to acquire the best and we have been able to choose the right individuals to match the challenges we face. •



Pacific Blasting & Demolition Ltd. is recognized worldwide as an industry leader in customer service, technology and innovation. At Pacific Blasting, we are committed to carrying out your project with the highest regard for safety, quality, productivity and the environment.



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Contact person:

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The Vital Ingredient: Engaging with Local Communities

"People are key to the success of a mining company and personal relationships are highly important. As a lesson learnt in my career history, where a lot of companies can get into difficulties, is by not respecting the opinions of some of the other stakeholders. It is extremely important to be both upfront and fair with all the interest groups involved. One of the facets, which helped us in meeting our schedule at the Copper Mountain mine, was the support of the local governments, which came through open and continuous communication."

- Jim O'Rourke, CEO,
Copper Mountain Mining Corp.





Corporate Social Responsibility

Setting the standard

Mineral deposits do not always turn up in convenient locations, far from communities their extraction may affect. Mining companies are increasingly expected to cope not only with technical issues surrounding a deposit, but also engage with the human element. Corporate social responsibility (CSR) initiatives – aimed at reducing the negative impacts of mining and improving the living conditions of local communities – are as integral to a modern mining operation as any other facet of a project. For Vancouver-based companies operating either at home or overseas, this includes investment in infrastructure, social capital and the development of human capital. Northeast of Prince Rupert, British Columbia, Avanti Mining has approached First Nations relations from an employment-based perspective. To help develop the skillset of the surrounding Nisga'a First Nation, Avanti has developed a strong relationship with a federally registered charity, the British Columbia Aboriginal Mine Training Association (BCAMTA). This partnership, in collaboration with the economic consuls in Nisga'a villages and the Northwest Community College, will provide tailored training specifically to fit the needs of Avanti's Kitsault molybdenum project. The support industry has also sought to develop robust initiatives with First Nations groups in British Columbia. The environmental consulting firm ERM Rescan is one such company. ERM Rescan's experience working with indigenous groups in North and South America has provided the company with the knowledge required to establish a strong working relationship with the Tahltan Nation Development Corporation. The corporation, which was established to ensure the full participation of this community of 2,500 people in economic activities on traditional Tahltan territory, has had an established relationship with ERM Rescan since 2004. Clem Pelletier,

ERM Rescan's principal partner, has labeled this relationship with the Tahltan as a great success story.

ERM Rescan is not the only service company working with aboriginals in Canada. Superior Propane, an energy provider to the mining industry, has been actively committed to, "Energizing the Future of aboriginal communities." For over 60 years the company has leveraged its national supply chain to provide heating and energy solutions to Aboriginal groups in remote locations. "Our national footprint and capabilities enable us to serve remote communities and [their] unique needs with customized end-to-end energy solutions in an environmentally sustainable manner and within Aboriginal land use expectations," said Carl Bitonti, senior mining consultant.

Early and sustained interaction can help mitigate unforeseen issues with a mining project. NOVAGOLD RESOURCES, through its Mining Matters campaign, has actively worked with aboriginal corporations and nearby communities since exploration began at their Donlin gold property in Alaska. "We have agreements in place with the Calista and the Kuskokwim corporations, who are actively involved in the project and look forward to seeing the fruits of our labor," said Mélanie Hennessey, vice president for corporate communications. The company was recently rewarded at its first public comment period for permitting. "The level of understanding that the 14 communities had of the project was really a testament to the work that has been done over the years by the Donlin Gold team," said Gregory Lang. Building up community support and working with local stakeholders as partners is part of breaking with the past actions of a few bad apples. No company is more cognizant of the need to distinguish itself from some of its not so socially conscious peers as B2Gold. When the company acquired its El Limon mine in

Nicaragua it sought to immediately implement CSR initiatives. According to Clive Johnson, president and CEO: "Other companies which had previously owned the mine were never committed to the long term."

B2Gold asked the Nicaraguan government, local unions and nearby communities to give the company a year to enact its best practices. These initiatives were based on the corporate culture of B2Gold summarized by Johnson as, "fairness, transparency and respect." Three years on and there has not been a single labor dispute at El Limon. The company has also established committees with local governments to discuss and implement projects which fit the needs of these communities. Moving forward, B2Gold has looked to implement its successful initiatives at its Otjikoto project in Namibia. According to Johnson, the government of Namibia is highly supportive of B2Gold's CSR initiatives and the company believes that it will set the standard for mining operations in the country.

The government of Peru has also been quite happy with the community initiatives put forward by another Vancouver-based mining

company. Bear Creek Mining has made investments around its Corani project to the tune of \$1 million, with a focus on local education initiatives. This includes building and remodeling five schools and unveiling welding and mechanic courses to prepare locals for employment once production begins. Highlighting the growing understanding among the industry of the need for long term benefits for local communities, Bear Creek has also created a sustainable community development, establishing a \$1.5 million a year foundation with local communities to help guide them to long term economic development. Given these robust initiatives, it is no wonder that Bear Creek's approach has been, "...applauded by the Peruvian government, which has publically stated that our efforts should be emulated by other mining companies," said president, CEO, and director Andrew Swarthout.

China Gold International Resources is another company that has paved the way for more consciously developed CSR initiatives, in a region as politically contentious as Tibet. China Gold's Jiama copper polymetallic mine

has been recognized as both a 'Green Mine' and a sustainably developed project by the governments of China and the Tibetan Autonomous Region. According to Jerry Xie, executive vice president: "We entered the region with the highest standard of environmental stewardship and community relations [which included] the development of infrastructure, schooling, water treatment, technological innovation and the involvement of local labor." As a result of China Gold's program the average family income in the area of the Jiama mine grew approximately 12 times as individuals were hired and trained to company standards. Given this success and the substantial improvements made by China Gold, the Jiama project is now the benchmark for mining projects in Tibet.

These companies and others have set the standard for CSR in mining operations at home in British Columbia and around the globe. Increasingly executives are preempting and responding to the needs of those that live near their operations, highlighting the moral responsibility to interact equitably with surrounding communities. •



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INTERVIEW WITH

Clem Pelletier

PRINCIPAL PARTNER
ERM RESCAN

Global Business Reports saw Rescan in 2011 and it has since been acquired by ERM Group Inc. Could you provide us with an update on your company since you last met with Global Business Reports?

The acquisition was completed in 2012, making the company part of a larger organization with head office in London UK. The merger has been beneficial in a number of areas, for example, expanding our horizons and providing opportunities for team members to become partners in a large multi-disciplinary company. As part of ERM, we are members of a network of 140 offices across 40 countries, with a significant mining presence in the United States, Australia, Southeast Asia, South Africa, and Europe. Although our work could be completed from any location around the world, Vancouver is a very good base for mining work. ERM is heavily involved in oil and gas, and is looking to develop similar strength in both mining and power in order to broaden the organization's foundation.

Rescan's work for Seabridge Gold's KSM project, which started in 2007, takes into consideration a large number of stakeholders. What is the methodology behind this and what are the main lessons learned from this project?

The KSM project for Seabridge Gold is a large mining and processing project located in Northwestern British Columbia. The project is complex due to the multiple jurisdictions including the federal environmental agency CEAA with a number of federal departments; British Columbia environmental agency the EAO with multiple ministries; four First Nations and a Treaty Nation; State of Alaska and US federal agencies such as US EPA. The complexities and concerns are due somewhat to the terrain and water manage-

ment issues associated with the location of the project. The project is a multi-billion dollar project involving state of the art environmental mitigation strategies and management plans to minimize the impact on the receiving environment. Seabridge understands the environmental sensitivities of the area and has worked very closely with every stakeholder group. The project design has evolved through a collaborative and an adaptive management approach.

On the environmental side, the federal government is seeking to tighten regulation of effluents, while concurrently the provincial government looking to speed up the permitting process. Do these changes address concrete environmental issues in British Columbia, and if so what other issues ought to be tackled by both levels of government?

The joint federal and provincial process in British Columbia is well defined and functional. Certain projects have faced difficulties with the process primarily due to lack of responsiveness to regulatory requirements. With the harmonized federal and provincial approach, there is minimal duplication. The requirement to include a broad spectrum of regulators, stakeholders and acknowledging the importance of First Nations makes the process laborious. The approval process is long and arduous but that is what is required to satisfy all pertinent social and technical issues. Everyone reviewing a project is risk adverse and as a result the level of certainty required involved very extensive baseline investigations and simulation studies. Industry needs to obtain a social license to operate. The idea that a project will provide jobs is no longer the acceptable norm. Society needs assurances that the project will not cause irreversible long term damage to the environment. The KSM

Project approval process is built on consensus-driven adaptive management involving many parties with diverging views and requirements. There is no question it is a challenge and very expensive to license and permit a project in North America. However, once you have completed the approval process and obtained your permits there is a forward looking level of certainty.

In 2012, Rescan was named one of the top employers for young people by the editors of Canada's Top 100 Employers. With mining facing a potential labor shortage, how has Rescan worked to retain and train recent graduates?

Rescan as a group of 200 employees has been labeled as being somewhat "academic" by some people. Over as 20% of our employees have PhDs and 80% of our employees have post graduate degrees. We consider them well trained in various disciplines. Our leadership team has mining experience combined with significant regulatory experience. With this background we historically have a list of people wanting to work for Rescan. Now being part of ERM we are able to provide much more flexibility in terms of where our employees can choose to work. Our staff is very international as a result of our recruiting practices and internal transfers. Recent transfers with significant environmental experience on international mining projects from the United Kingdom, Australia and South Africa have added to diversity to our group. On the knowledge-sharing front, we have worked with First Nations and Aboriginals as partners in North and South America for a number of years. We have an operating joint venture with the Tahltan Development Corporation established in 2004 which has been a success story. •



INTERVIEW WITH **Jerry Xie**

EXECUTIVE VICE PRESIDENT AND CORPORATE SECRETARY
CHINA GOLD INTERNATIONAL RESOURCES CORP. LTD

China Gold International Resources Corp. Ltd is a Vancouver-based gold and copper producer in China. Could you please provide an overview and introduction to your company?

We are a Canadian based, profitable and growing gold and copper producer, operating two expanding mines in China: the CSH gold mine in the Inner Mongolia region, and the Jiama copper-poly-metallic mine in the Tibet region. We are a dual-listed public company supported by the largest Chinese gold producer China National Gold (CNG) who is our 39% shareholder. This unique partnership is advantageous to us because in China we are viewed as a local Chinese miner, supported by the government, with access to management, technical and operating expertise of China National Gold and also able to get CNG's help with low-interest sizable loans. For CNG, this partnership is advantageous because we serve as their overseas listing vehicle for international expansion.

We are proud of our consistent profitability. 2013 is our sixth year of growing revenues and profit and our seventh year of growing production.

China Gold International recently completed the construction of an additional 30,000 mt/d crusher and an ADR plant at the CHS gold mine in view of bringing the mine's production to 60,000 mt/d. Could you provide an overview of this project and the ongoing work to increase production?

China Gold International growth strategy has two major parts, organic growth and acquisition. Both the CHS gold mine and the Jiama copper-polymetallic mine are currently under expansion to reach the 260,000 gold oz/y and 176,000 million lbs of copper /y production guidance. Our immediate goal is to increase the 30,000 mt/d at the CHS gold mine to 60,000 mt/d and to move production from 139,000 oz/y in 2012 to expected 260,000 oz/y in 2015. Most of the CHS gold mine's expansion construction was completed this August and full completion is expected at the end of this year. This will allow the mine to increase its production to estimated 145,000 gold oz/y this year. Next year the plan is to bring production to 208,000 oz/y and, by 2015, to reach full capacity, 260,000 oz/y.

The Jiama Copper Polymetallic Mine has been recognized as both a "Green Mine" and a sustainably developed mine by the government of China and the Tibetan Autonomous Region. Could you provide an overview of this project and its environmental benefits?

We entered the region with the highest standard of environmen-

tal stewardship and community relations. The company unveiled a robust economic plan for the surrounding communities. This included the development of infrastructure and schooling, greening, landscaping, water treatment, technological innovation and involvement of local labor. The average family income in the area grew approximately 12 times as individuals were hired and trained to the highest of standards. About 35% of Jiama's operation is staffed by local labor; this number is increasing. In 2012 19% of CGG's employees were women, and 27% were ethnic minorities. Jiama Mine established a joint venture with Jiama Town. 655 households became shareholders of the joint venture and many of those are employed in construction, transportation and other labor. These substantial improvements and the conscious way in which the company operates resulted in the Jiama project becoming a benchmark for mining projects in Tibet. •

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INTERVIEW WITH

John McConnell

DIRECTOR, PRESIDENT AND CEO
VICTORIA GOLD CORP.

Victoria Gold Corp. is a gold exploration and development company with a focus on advancing the Eagle Gold project to production. Could you provide an introduction to your company and how it came to obtain this deposit?

Victoria Resources is the predecessor company that was 40% owned and managed by Bema Gold when it was acquired by Kinross Gold in the spring of 2007. At that time, Kinross decided to replace the board and brought in our current chairman Sean Harvey, myself and a few other individuals as board members. We choose to take on this project because we felt that with the support of Kinross we could turn this junior company, which had no management, no board, CAD \$2.5 million in debt, an average trading volume of 10,000 shares a day and three grassroots projects in Nevada, into a serious contender and near term producer. Victoria Gold saw the financial meltdown of 2008, as an opportunity and acquired two companies. One of these companies was StrataGold Corporation, which had assets in Guyana and the Eagle asset in Yukon. Victoria Gold sold the assets in Guyana to focus on near term production potential in the Yukon and that was how Eagle came to be our number one focus.

Victoria Gold is focused on bringing the Eagle Gold project to operation in 2016. Could you provide an introduction to this asset?

Victoria Gold is very excited about the Eagle Gold project as the resource of this deposit is 4.8 million oz indicated (222 million mt averaging 0.68 g/t), and 1.5 million oz inferred (78 million mt averaging 0.60 g/t). Victoria Gold completed a feasibility study in 2012 which demonstrated that Eagle has the capability of producing over 200,000 oz gold per year. Eagle Gold is one of only

a few undeveloped gold projects in a first world country that is permitted and that will produce a very sizeable amount of gold per year. The cash costs from an operating expense perspective are approximately \$600 per ounce and all-in costs are just under \$1,000 per ounce. This project is shovel ready with good infrastructure including year-round road access, an existing 100 person all season camp, located within 40 km of grid power, and is near to the community of Mayo which offers a full-service airport.

In October 2013 Victoria Gold received its Quartz Mining License for the Eagle Gold Project. What are the next steps to bringing the Eagle Gold Project into production?

Victoria Gold is looking to raise CAD \$430 million by early 2014 so that we can begin construction in the spring. Given the current state of the capital markets, Victoria Gold is looking at a number of alternatives, including selling a gold stream, forward sales of gold or bringing in a partner. While Victoria Gold still has early 2014 as a target to move this project into construction, we are going to be prudent in our financing decisions to preserve and protect shareholder value and to not dilute the value of the shares.

Victoria Gold has established a non-profit, the Victoria Gold Yukon Student Encouragement Society that looks to keep children in the Yukon in school. Could you speak to the goals of this community initiative and some of its achievements?

Victoria Gold was looking for a charity that would benefit communities across the Yukon and after meeting with the Minister of Education, Scott Kent, (who is now the Minister of Energy, Mines and Resources) learned of the great need for education initiatives to address attendance at school. On average,

students between the grades of one and six miss a full year of school and those between grades seven and twelve miss more than a full year of school. Victoria Gold set about looking at how we could address this issue and encourage students to improve their attendance at school and the Victoria Gold Yukon Student Encouragement Society was the result. The Society has raised over CAD \$100,000 in just 14 months.

The approach the Society takes is unique because the programs are developed by the local schools, First Nations groups or community. The groups develop a project that they believe will work, determine and include a budget and apply to the Society for approval and funding. In 2013, our first year, the Society funded eleven projects, Yukon wide and we are already making a difference in schools. The simplest program was to provide every student in a school with an alarm clock. We fund different initiatives at the various schools based on what the communities believe students need in order to improve their attendance at school and thereby achieve success in their future

As a final word to our readers, when Global Business Reports returns in two to three years' time to complete another editorial on Vancouver, what will be the topics of conversation with Victoria Gold Corp.?

Victoria Gold's objective is to build Eagle into an operating low cost high margin gold mine that produces gold in the Yukon. In a period that is a bit longer than three years, Victoria Gold hopes to grow itself into a mid-tier mining company. There is a lot of potential in the Yukon and with the sheer amount of opportunity and great projects available in the territory, Victoria Gold would like to grow as the developer of those projects. •

INTERVIEW WITH

Gregory Lang & Melanie Hennessey



GL: PRESIDENT AND CEO

MH: VICE PRESIDENT, CORPORATE COMMUNICATIONS
NOVAGOLD RESOURCES INC.

.....
Could you provide us with an overview of the Donlin gold project?

GL: There are quite a few reasons why we think Donlin Gold is one of the most important development projects in the gold industry. First and foremost, it is the largest undeveloped gold deposit in the world. One of the pillars of the investment thesis for NOVAGOLD is the fact that our assets are located in safe jurisdictions, as opposed in countries that are now virtually un-investable because of governments changing demands on mining companies. Donlin Gold is in the top 1% of all gold deposits with approximately 34 million oz of gold in Proven and Probable reserves, averaging 2.1 grams per tonne. Once in operation, it is expected to produce approximately 1,500,000 oz of gold annually in the first five full years and 1,100,000 oz of gold annually over a 27-year mine life, as per the updated feasibility study. With life of mine all-in sustaining costs well below the industry average at \$735/oz of gold, Donlin Gold is regarded to be among the lowest-cost future producers in the world.

One of the focuses of NOVAGOLD is its Mining Matters campaign, a commitment to have NOVAGOLD's operations be environmentally friendly while benefitting the surrounding communities and interest groups. Could you talk to your community investment initiatives in Alaska and your interaction with the Calista and The Kuskokwim Corporations?

MH: NOVAGOLD has been actively involved with the Native corporations and surrounding communities since the inception of the exploration program. Donlin Gold is located on private land designated for its mineral endowment, and therefore Calista and The Kuskokwim Corporations (TKC) have the subsurface and surface rights to the property. We have agreements in place with both parties, who are actively involved in the project and look forward to seeing the fruits of the labor. The area where the project is located is one of the poorest regions in all of the United States, so Donlin Gold's realization will provide significant benefits.

GL: The company recently had its first public comment period as part of the permitting process with meetings in about 14 communities. The level of understanding that the various communities had of the project was really a testament to the work that has been done over the years by the Donlin Gold team.

Does the decision to become a pure gold play represent a confidence in world commodity prices and global demand?

GL: We believe that a pure play is easier for investors to understand. NOVAGOLD has the best undeveloped gold deposit in the world and it is in a safe jurisdiction: that is what our major shareholders are interested in. We are a small company and our success or failure largely resides on the future of the gold price. Gold is not only a commodity it is a currency; it is really the only currency that cannot be printed. The US government continues to raise the debt ceiling, and continues to take on policies that debase their currency, all of that bodes well for the price of gold in the future.

NOVAGOLD was re-structured before the downturn in commodities, which included a divestiture of non-core assets, a streamlining of expenses and the reduction of debt. Moving forward, how will you look to guide your company in the next two to three years?

GL: In three years' time we will be just about done with permitting and preparing for construction. In addition to an excellent asset base, the company has very supportive shareholders and a strong cash position to fund Donlin Gold through permitting. We are fortunate to have raised money before the collapse in mining equities, so financially we are very sound. We are in great shape whatever the next five years brings us. •

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Aboriginal Relations

Putting the First Nations first

Relations with First Nations communities are particularly sensitive in British Columbia due to the fact that land disputes and treaties were never officially resolved in the province, unlike elsewhere in Canada. Conflicting views therefore often arise between First Nations communities over who owns what. "Around 12.5% of land area in British Columbia is under land claims between disputing First Nations communities," said Tony Wachmann, director of mining, metallurgy and infrastructure at Stantec.

Despite diverging interests and aspirations between First Nations communities, confrontations tend to be rare for exploration companies if consultation is conducted in an appropriate way. "A big concern for

the mining industry in British Columbia is the uncertainty created by the aboriginal rights issues. The provincial government has not reached a province-wide agreement with the First Nations, and the First Nations community is quite fragmented with different aboriginal groups having varying expectations and overlapping traditional territories. Despite this uncertainty, this is not a particularly difficult issue during the exploration stage. Conflicts in British Columbia are rare if exploration companies go about the process appropriately by consulting with First Nations at an early stage, treating them with respect and letting them know their development plans," said Gregory C. Smith, partner and member of the mining group at national law firm, Miller Thomson LLP.

Addressing First Nations concerns prior to commencement is crucial to the success of any project in British Columbia. "In our experience, successful projects engage and collaborate with First Nations from the very beginning. There are numerous First Nations and each have their own unique cultures, values and traditions. Every First Nation has its own specific agreement and solutions must therefore address their respective needs and interests," said E. (Liz) Van Warmerdam, project manager at CH2M HILL.

Through the new mineral tax policy, British Columbia is the first province in Canada to share mineral tax revenues with First Nations communities local to new and expanding mines. Each agreement is made on a case-by-case basis and often the approval of a number of First Nations communities is required. The new policy is the first of its kind in Canada and will make steps towards appeasing First Nations concerns, one of the principal barriers to mine development. There is, however, still some way to go according to Dave Porter, CEO of the First Nations Energy and Mining Council of British Columbia, a consortium of First Nations chiefs that represent First Nations communities with regards to energy and mining. "The mining tax policy change is a positive decision that will start to change the question of benefit to First Nations. We have advocated for years for revenue sharing and British Columbia has made a significant step forward to address the issue but it still needs improvement. The policy only applies to new mines; our position is that all mines should be the focus of revenue sharing," said Porter. •

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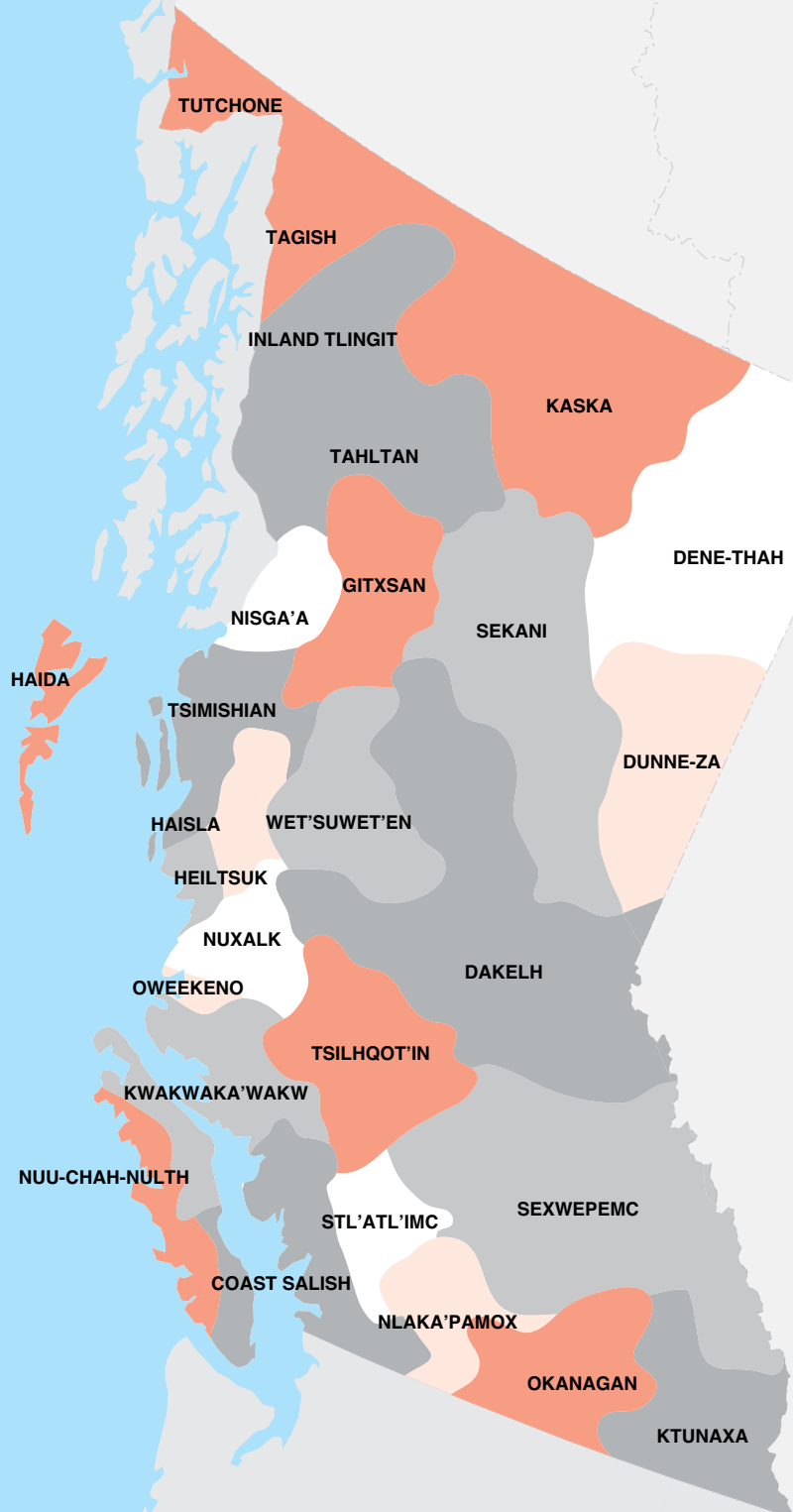
Fraser Institute Ranking

Source: Fraser Institute Annual Survey of Mining Companies

Group	Workforce Size	Unemployment Rate
First Nations	60,000	15%
Metis	45,100	12.9%
Aboriginal (total)	106,900	13.9%
Non-aboriginal	3,023,500	6.3%

Main First Nations Groups in British Columbia

Source: BC Ministry of Education



198

First Nations in British Columbia

Source: WelcomeBC

>30

First Nations Languages in British Columbia

Source: WelcomeBC

Chieftain Metals has dealt extensively with the Taku River Tlingit First Nation (TRTFN), signing a Memorandum of Understanding (MOU) and going constructively back and forth on a whole suite of consultations to obtain the necessary permits. We have also engaged the TRTFN in discussions to have a benefit agreement and there are differences on some of the terms so our efforts will continue until we have obtained a proper social license and support from the TRTFN. As well as economic impact, our project will provide tremendous, transformational social improvements. We will make available a great number of jobs the local community requires, if they want them; and there will also be contracts for local businesses and tax revenue sharing.

British Columbia is particularly enlightened in the revenue sharing agreements it has with the First Nations.

- Victor Wypyrsky, President and CEO, Chieftain Metals Corp.



INTERVIEW WITH

Dave Porter

CEO

FIRST NATIONS ENERGY AND MINING COUNCIL OF BRITISH COLUMBIA

The First Nations Energy and Mining Council was set up in 2006. Could you please start by providing a brief overview of the council and how it came about?

The First Nations Energy and Mining Council was formed in response to the tremendous pressure being exerted on the land base, the people who live on the land and the leadership of the First Nations community as a result of intensive activity in mining, oil and gas and liquefied natural gas (LNG). The chiefs were being inundated by exploration companies looking to access their land base and resources and therefore decided to hold a three day meeting in Prince George to discuss how best to proceed. On the first day, they invited industry and government to state their view of the world with respect to energy and mining activity; on the subsequent two days they put together a mandate and formed a commitment to create a council to represent First Nations communities with regards to energy and mining going forward. We are the only First Nations natural resources institution that is directly accountable to the leadership of the indigenous communities in British Columbia.

To what extent has dialogue between the mining industry and First Nation communities improved over recent years?

Over recent years, there has been a slight improvement in dialogue between the mining industry and First Nation communities although the mining industry has not embraced many of the ideas that we have put forward. We have been very clear about two fundamental policy platforms that must be put in place: with respect to government, there has to be revenue sharing with all First Nations; with respect to industry, there has to be profit sharing – if you are going to take the ore out of the lands of British Columbia

you have to share it with the communities that live there. British Columbia is unique in that the majority of the province is untreated territory so we have a situation of existing aboriginal titles alongside asserted Crown title. Negotiation now revolves around how to work with these potentially conflicting titles to get decisions that are collectively endorsed by both parties.

What is the First Nations Energy and Mining Council's view of government mining policy towards the environment and First Nations consultation?

We have a federal government that is very reactionary; rather than seeking out a consensus-based approach, or even fully consulting with the First Nations to inform of their policies and decisions, they have moved very aggressively on what they see as obstacles: the environmental assessment process and mining effluent regulations. With regards to the former, they have made unilateral changes to the Canadian Environmental Assessment Act without consulting First Nations. Regarding the latter, they are making it possible for companies to use fresh bodies of water for the purposes of discharging effluent and building tailings ponds.

To what extent do First Nations communities benefit from the wealth and labor that mining brings to British Columbia?

Mining currently brings very little benefit to First Nations communities in British Columbia. The mining tax policy change, however, is a positive decision that will start to change the question of benefit to First Nations. We have advocated for years for revenue sharing and British Columbia has made a significant step forward to address the issue but it still needs improvement. The policy only applies to new mines; our position is that all

mines should be the focus of revenue sharing. Regarding labor, all major industries in Canada are facing a labor shortage and the demographics of the aboriginal community clearly show that First Nations are the fastest growing population in Canada, the majority of whom are under the age of 25. The government has been very slow to recognize the opportunity of engaging aboriginal people in training. The Prime Minister has said he wants to see Canada as an energy superpower but they do not have the policies, initiatives and attitude to make that happen with the willing participation of the citizens of Canada, including the First Nations. As a consequence, we have \$650 billion worth of projects and the major obstacle for those projects becoming reality is the unsolved relationship with the aboriginal community.

What do the federal and provincial governments need to do in order to improve relations with First Nations communities and integrate them more into the mining process?

To be able to realize the full potential of our economy, to get the \$650 billion of projects into producing wealth for all Canadians to share, we need government to sit across the table from us, to negotiate with us and to reach out and understand what our situation is and what our needs are. There has to be a greater degree of revenue sharing with projects right across Canada and, parallel to that, there has to be profit sharing between industry and First Nations. In order to get there, relationships need to be built, memorandums of understanding signed and impact benefit agreements negotiated. We want to be at the table in partnership, helping to put together a policy and approach to mineral development that is respectful of the environment and of First Nations rights. •



INTERVIEW WITH

Gregory C. Smith

PARTNER AND MEMBER, MINING GROUP
MILLER THOMSON LLP

What legal services does Miller Thomson provide to the mining industry here in British Columbia and what shift in demand for your services have you experienced during these tough few years?

The last few years have been extraordinarily difficult for mineral exploration companies. The few companies that are fortunate enough to have cash in the treasury are generally doing as little as possible in order to retain precious cash. Some commentators have been saying that a third of the companies on the TSX Venture Exchange do not have enough capital to carry them for six months. Unfortunately, several of my clients are in that category and the type of work that we are currently doing for them includes assisting with selling assets, consolidating share capital, trying to make themselves more attractive for financing and joint venturing properties to reduce their burn rate. We have seen very some merger and acquisition activity, particularly in the last three months. I would have expected to see more activity by companies that are well financed picking up companies that have good assets but are in a weak financial position. We will see another dawn for the mineral exploration business, as we are just at the bottom of a very difficult cycle - companies that are proactive and invest in good projects now will see a significant benefit in the future. I would like to see some M&A activity going forward but this generally requires more financing and at the moment the majority of investors are simply afraid to do anything.

Legal firms are also involved in the financing side of the mining industry. To what extent have you been involved in private placements in this economic climate?

Miller Thomson is very active in private placements through acting for both mineral

exploration companies seeking financing and brokerage firms that help them to raise financing. In excess of 90% of the money raised on the TSX Venture Exchange is through private placements. It may be some time before we start seeing companies going public by way of IPO again; the gestation period (lead time) to structure a deal and put it together with a viable project takes several months and I have not heard of any companies that are currently in this phase. Hopefully, some companies will have the foresight to get ready now in order to profit from the next bull market. Some of our clients are reorganizing as they see that as their only prospect of being able to raise money but, frankly, we are not seeing very much financing activity for the companies that have reorganized.

Miller Thomson works with mining companies based in Vancouver but with operations around the world. What are the main legal issues you encounter abroad and when would these issues be dealt with here as opposed to locally?

The majority of Miller Thomson's mineral exploration clients are operating internationally, and we act as their lead counsel on matters such as financing, corporate governance, exchange filings and disclosure matters. However, when they acquire a property or are operating in another jurisdiction we would generally work with local counsel on issues such as mineral tenure and exploration permits. Miller Thomson is a member of a worldwide association of law firms called Multilaw, which has representative firms in most major centers. We have a multitude of local firms that we deal with in mining jurisdictions around the world.

British Columbia is currently seeing a return of workers from around the world due to a

rise in geo-political issues in the mining industry. What major issues have you been seeing and where are the hotspots?

Regulation of mineral exploration in British Columbia is fair and reasonable, and if you comply with the process and obtain the necessary permits and environmental assessments you are unlikely to have any surprises down the road. This is not the case in some foreign jurisdictions. Argentina, for example, was considered a resource exploration friendly jurisdiction up until recently when a large oil and gas company was nationalized. In addition, the Argentine province of Santa Cruz has announced an asset tax on reserves for companies operating in the region. These developments have created serious concerns for companies with assets in Argentina. The major concern in the mining industry when operating around the world is the capricious nature of government policy.

A major issue here in British Columbia is that over First Nations rights. How can this issue be resolved?

A big concern for the mining industry in British Columbia is the uncertainty created by the aboriginal rights issues. The British Columbia government has not reached a province-wide agreement with the First Nations, and the First Nations community is quite fragmented with different aboriginal groups having varying expectations and overlapping traditional territories. Despite this uncertainty, I understand that this is not a particularly difficult issue during the exploration stage. Conflicts in British Columbia are rare if exploration companies go about the process appropriately by consulting with First Nations at an early stage, treating them with respect and letting them know their development plans. •



INTERVIEW WITH

Robert A. Quartermain

PRESIDENT AND CEO
PRETIUM RESOURCES INC.

Could you start by proving an overview of Brucejack and the Pretium story thus far?

The Brucejack project is located in northern British Columbia, about 65 km north of Stewart, in an area with a number of high-grade gold mines known as the Golden Triangle. There are also numerous low-grade gold occurrences in the region. In our case, the Snowfield project was known to contain some low-grade gold mineralization and, from 2006 to 2009, drill testing by Silver Standard outlined a large bulk tonnage resource. This brought us to do more work in the Brucejack area where there had been work done in the 1980's to identify the West Zone. The earlier work outlined approximately 500,000 oz gold and 16 million oz silver of high-grade mineralization, within a large alteration area. In 2009, Silver Standard went ahead with drilling the large alteration zone; the program returned numerous 4 kg and 5 kg hits of gold in drill core down 600 meters below surface. Recently we had intersections up to 40 kg/t gold, which I have never seen in my career. After I retired, Silver Standard decided to sell the asset because they are a silver company. I decided to buy the property by way of IPO on a thesis that we would find more high-grade ore underground; we have been able to prove this thesis with the work that we have done over the last three years including 218,127 meters of drilling into the Valley of the Kings. We eventually outlined 8.7 million oz of gold in the measured and indicated resource categories (15.3 million mt grading 17.6 g/t of gold); and 4.9 million ounces of gold in the Inferred Mineral Resource category (5.9 million mt grading 25.6 g/t) as of December 2013.

You have recently carried out a feasibility study outlining production of 7.1 million oz

gold over 22 years. What are the next steps going forward?

Pretium has extracted an underground 10,000 mt bulk sample for validation of the resource. That report will be published in Q1, 2014. We have started both the provincial and federal permitting process, for a 2,700 mt per day operation. In Q1, 2014 we expect to file our Environmental Impact Statement and should receive our permits in late 2014, allowing us to construct the mine in 2015 and ramp up production in 2016. We will be looking at sourcing production financing sometime mid to late 2014 as we advance the permitting. A project with this high-grade gold should have no problem in receiving financing as it is attractive at the lower gold prices we are seeing now. When we did the feasibility study we stressed the project at \$800 gold and it still had a double-digit rate of return and a discounted net present value (NVP) higher than the capital it required.

One of the major impediments to mining in British Columbia is First Nations relations. How is your dialogue with local First Nations communities nearby to Brucejack?

Pretium's relations with local First Nations communities is very good; around 15% of our labor force is made up of First Nations people from the area. We have a good relationship with the Skii km Lax Ha First Nation, which has asserted rights in the region, and we have been working with them for the last five years. We have thus far put \$10 million into their company on various contracts; they manage all our roads and at our underground bulk sample they take the waste material and deposit it in the lake. We are in the Naas Area watershed, the treated lands of the Nisga'a Nation and we have met with their leadership to finalize commercial

contracts. We also have commercial relationships with members of the Tahltan First Nations and are now working with their development corporation. The government has indicated these are the three First Nations we must consult with for permitting.

We carry out our research in key markets every two to three years. When we return in three years time what will be the main topics of conversation?

It is hard to say where Pretium will be in three years time; there are certainly other senior gold mining companies who have their eye on us. Whether you are talking to me or not in 3 years would be the first question to address. If it is me, we will be talking about the positive engagement and relationships we have been able to develop with our First Nation neighbors and with other various stakeholders in the region; how we are building and operating an environmentally benign project; and how the fact that we have a higher gold price is making the project look even more attractive and profitable. As opposed to talking about what we expect to do, we will be talking about the concrete benefits and changes that we are making in the region. •

INTERVIEW WITH

Christine J.S. Kowbel & Keith Bergner

CK: PARTNER

KB: PARTNER

LAWSON LUNDELL LLP



Lawson Lundell LLP has a 100-plus year history serving Western Canada from its offices in Vancouver, Calgary and Yellowknife. Please provide a brief introduction to your company, with a specific view on its relationship with the mining industry.

KB: A core practice of this firm centers on natural resources; in the earliest days it started with the logging industry. This expanded very quickly into mining and other resource industries. Many of the firm's core practice groups have formed around the natural resources sector, with the core group of mining lawyers complemented by practices in corporate, environmental, financial, regulatory and Aboriginal law.

A report released this month by the Fraser Institute highlights four core issues for the mining sector in British Columbia, one of which is Aboriginal land claims. From a structural standpoint

what are the issues surrounding First Nations land claims that impede mining development in the province?

KB: British Columbia is somewhat unique in the Canadian context, given that the vast majority of First Nations lands are not covered by treaties. In these areas, Aboriginal right and title claims remain asserted but unresolved. Claims can be resolved in one of two ways: negotiation leading to an established treaty or through litigation. Overall, work in the area of land claims is still in its early stages. For mining companies this has meant that the Crown can still make decisions and issue permits and authorizations; though there is a duty to consult Aboriginal groups. In practice there are still a number of issues: the role of the mining proponent and the Crown, the de-risking of projects and the creation of certainty around mining investments. The change in approach to Aboriginal law has been a very interesting process. 15 years ago Aboriginal law was almost exclusively a litigation process. Miners figured out very quickly that it was not an effective way to do business and shifted to negotiation in view of creating certainty where the law gives you none. Further to this evolution, at the corporate solicitor level this has become an acceptable part of due diligence and the overarching transaction.

CK: Funding of Canadian mining projects is often subject to the issues which arise are around uncertainty and Aboriginal law. While it is difficult to achieve certainty with respect to these issues, in British Columbia, as companies have been dealing with these issues for a long time they are ahead of the curve vis-à-vis other provinces and companies have a sense of their role with regards to Aboriginal engagement. Most mining companies in British Columbia take a long-term view of their relationship with local First Nations and are making significant efforts to build a sustainable relationship between those groups and their project, and to identify

and respond to aboriginal concerns. These efforts in turn help to de-risk the project.

Which other shifts have been noted in the realm of Aboriginal law and its relation to the mining industry?

KB: One of the first lessons in Aboriginal law is that early engagement is highly beneficial. Engagement used to only occur after a feasibility study was completed, at which point the company looked to secure an Impact Benefit Agreement (IBA). Now, we have reached a point where engagement begins at the early stage of exploration. Companies who do so find that once they enter the developmental stage that the building blocks are already in place for an agreement. A recent development in this realm is the provincial government's willingness to share around 35% to 37% of the mineral tax revenue on new and expansion projects with First Nations whose traditional territory the mineral deposits are located. The combination of provincial revenue sharing and the continued development of IBAs have come together to largely define the current approach.

Given these issues, including the duty to consult and the example set by settled land claims in the northern territories, how will Aboriginal interaction with the mining industry develop in the near future?

KB: Outstanding land claims will not be resolved in a timeframe that meets current project schedules. The majority of proponents will still be dealing with an unsettled land claim situation. A unique factor in British Columbia is the sheer number of First Nations groups. There are over 600 in Canada, 200-plus of which are in this province. This staggering number makes it likely that mines and supporting infrastructure for mines, whether access roads or transmission lines, will be located on lands subject to overlapping claims by First Nations. Moving forward, as these land claims are settled First Nations may shift to becoming landholders, creating a very different dynamic for mining projects.

CK: As more land claims are settled in British Columbia, some uncertainty will be removed though there will be further work to be done. Land claims agreements are legal agreements which are subject to interpretation, and there will be a learning curve for the Aboriginal groups, the government and proponents as they navigate changing regulatory processes and determine how the processes set out in the land claims overlay with provincial and federal requirement. •

Vancouver: The World's Mining Playground

Vancouver truly is the world's epicenter for the mining industry where companies entertain potential clients, financiers, investors and host events, seminars, etc. in Canada's most beautiful city. Vancouver's selection of high-end and popular restaurants and corporate entertainment venues (golfing, yachting, fishing, hockey, to name but a few) means that the city is a playground for the mining industry where many business deals and relationships are made. To ensure successful business, mining companies want to know where they can go to continuously impress existing and potential clients.





Vancouver and its Backyard

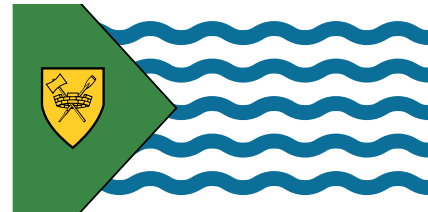
Travel in beautiful British Columbia

Boasting three of its largest cities in the top five of the Economist Intelligence Unit's 2013 livability ranking, Canada is certainly doing something right. Coming in at number three, just before Toronto (ranked 4th) and Calgary (ranked 5th) is Vancouver, a city with a sleek architectural style and urban design that is enveloped by natural beauty. The world's epicenter for the mining industry, where companies convene to meet potential clients, financiers, investors and host events, downtown Vancouver and the surrounding area is bursting with choices when it comes to hotels, restaurants and leisure activities.

With the majority of Vancouver-based mining companies headquartered in the downtown core, you need to look no further for your hotel accommodations. To stay at an iconic Vancouver landmark, consider the Rosewood Hotel Georgia. First built in 1927, its interior offers a combination of restored original architecture with

modern art coupled with "mansion-style service provided by our employees, again playing on the history and esthetics of this location, while ensuring a memorable experience," as explains Managing Director Bernhard Wimmer. For the business traveler seeking reliable and consistent service, consider the Hampton Inn & Suites Hotel. Understanding that the busy professional has particular needs, General Manager Aliya Bhatia of the Hampton Inn & Suites Hotel looks to accommodate: "In the morning, if they do not have time to enjoy our hot breakfast, they can easily grab a breakfast bag, which includes a bottle of water, a muffin, fruit and granola bars, to go readily available at front desk. If their office is downtown, we can drop them off with our complimentary shuttle service so that they do not have to worry about one-way commute as they run to their meetings."

While you can find any type of cuisine in this culturally diverse city, to sample



Exchange Rates

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1 CAD = 0.82 AUD
1 CAD = 1.02 AUD

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British Columbia (excluding greater Vancouver)
Area Code: 250

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Emergencies/Ambulance/Fire: 911
Vancouver Police: +1 (604) 717-3321

Police Hotline: 6225 0000

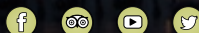


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an authentic Canadian meal, you can head down from your room at the Coal Coast Harbour Hotel to enjoy “Canadian-inspired comfort food” at “Prestons”. Offering a range of dishes from Canada’s famous Poutine dish to the Bison Carpaccio, regional general manager Judy Adams explains that at Preston’s, “Canadian comfort cuisine is all about celebrating traditional Canadian food and the culinary experiences of the various cultures which make up our multicultural country.” For a bite on the run between meetings, look around town for the food cart Vij’s Railway Express. A new idea from an acclaimed chain of Indian restaurants first established in 1994, Vij’s Railway Express brings, “unique curries, kabobs and other dishes as our style of street food to the downtown core and other neighborhoods of Vancouver,” according to Vikram Vij, CEO, Chef and Restaurateur. But of course, given Vancouver’s location on the water, you cannot leave the city without sampling the seafood!

To unwind after work and meet colleagues within the mining industry, there is no better spot than Mahony and Sons’ location on the waterfront. A pub designed to give a genuine Irish experience, Mahony and Sons serves as the hub of the mining industry for get-togethers and events. As described by Chris Mahony, one of the five brothers that make up the management team, Mahony and Sons “offers a premium environment in a casual setting. Customers are not confined to one table as they might be in a restaurant as this space offers a congenial pub feel where people can table hop; they regularly see someone else in the industry they know from across the room, walk over to chat and have a beer.”

Bountifully endowed by Mother Nature, there’s no dearth of options available to fill up your weekends outside of the boardroom. If looking to spend time in the great outdoors without wandering too far from the city, stop by Vancouver’s Stanley Park, ranked by TripAdvisor as the #1 park in the world in 2013. Here, you can walk, jog, cycle or skate along the seawall or hike through the park’s wooded expanse. In addition, there are a number of man-made enhancements to visit, including Stanley Park’s Totem Poles and the Vancouver

Aquarium. For a more restful weekend activity, consider a day of fishing. Chromer Sport Fishing, the province’s only licensed travel agency specializing in fishing, offers over 20 saltwater and freshwater fishing destinations. Having established Chromer Sport Fishing in 2007, owner and operator Yos Gladstone, explains that there are, “large fishing areas on the coast and interior; including, major steelhead fishing rivers. For the client who wishes to stay close to Vancouver, we have fishing packages 90 minutes away in the Fraser River,

British Columbia’s main drainage where there is a wealth of fish. The largest freshwater game fish in North America, the White Sturgeon, can be caught on the Fraser.”

From the plethora of outdoor activities to the dizzying number of first-class restaurants, Vancouver has something for everyone. Should you be so lucky as to have a business trip to Vancouver, be sure to take full advantage of the diversity that this one-of-a-kind city has to offer its residents and guests. •

Climate

	Average high °C	Average low °C	Sunshine hours	Average Precipitation days	Precipitation mm
JAN	6.8	2.7	60.1	19.5	178.8
FEB	8.4	3.4	91.0	15.4	183.8
MAR	10.6	4.6	134.8	17.8	155.8
APR	13.5	6.5	185.0	14.8	117.9
MAY	16.8	9.5	222.5	13.2	86.7
JUN	19.6	12.2	226.9	11.5	69.9
JUL	22.0	14.1	289.8	6.3	53.4
AGO	22.3	14.4	277.1	6.7	50.8
SEP	19.0	11.6	212.8	8.3	73.3
OCT	13.9	8.2	120.7	15.4	147.8
NOV	9.3	4.8	60.4	20.4	239.2
DEC	6.8	2.8	56.5	19.7	231.3



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In the Heart of the Sports and Entertainment District



INTERVIEW WITH

Jim D. Miller

GENERAL MANAGER
ROSEDALE ON ROBSON SUITE HOTEL

To begin could you please provide our readers with an introduction to Rosedale on Robson Suite Hotel?

The Rosedale on Robson Suite Hotel was the brain child of Chevalier International Holdings Ltd, based out of Hong Kong. They have many interests, including development, and were responsible for building the adjacent Rosedale Gardens condo tower. As a condition of developing the condominium they were allowed to build a hotel in the area. The Rosedale on Robson is their first and one and only hotel in Canada. It was developed as a condominium, with owners putting their suites into a rental pool, with Chevalier continuing to operate the hotel. In addition to those suites in the rental pool there are others which are owned by different operators.

How many rooms are in the hotel and how do they differ?

In the tower there are 275 suites, 217 of which are controlled by myself, as part of Chevalier. There is a time share operator that owns the remaining suites, though we contract our services to them as well. The suites range from one to two bedrooms and include a galley kitchen, complete with a three burner stove, oven and microwave. There is heating and air conditioning control and fully opening windows. Our one bedroom apartments come with either a king, queen or two double beds. The two bedroom suite comes in two varieties, the standard two bedroom suite, with a queen or king in each bedroom or a family suite, with a king or queen in one bedroom, two single beds in the second bedroom and a sofa bed in the living room.

These amenities are well suited for guests who are staying for a longer period of time.

How long is the average stay at Rosedale on Robson?

The average stay is two and a half nights, though we have the ability to do month-long leases. Monthly guests are usually those that are in the midst of relocating to Vancouver on behalf of their employer. We see a number of these guests from the mining industry, given our proximity to the offices of engineering firms such as AMEC and Stantec.

How important are corporate clients to your hotel?

Our corporate clients are highly important to the Rosedale on Robson, particularly in the winter months. On the corporate side we have had a very loyal following since the beginning. Our location plays a large part with our return customers. The hotel is easy walking distance to public transportation, the business district and a variety of entertainment venues.

Could you talk about the sports package offerings provided by the Rosedale on Robson?

The Rosedale on Robson provides hockey and football packages for our clients. We carry 42 season tickets per night for Vancouver Canucks hockey games. Businesses buy these packages as gifts for employees and clients and the main markets for these packages are companies based on Vancouver Island and small businesses located in the city. The hockey packages start at \$125 per person, which includes ticket, taxes and a bedroom for the night. Our football packages appeal mostly to business people from the interior of the province.

The Rosedale on Robson has five meeting rooms in total, which features are most im-

portant for your clients?

One of the nicest features is that each of our three main meeting rooms has floor-to-ceiling windows. In addition, there are two other atrium rooms which are surrounded entirely by glass and have access to the adjacent patio.

In addition to these meetings spaces what else draws your corporate clients to the Rosedale on Robson?

Many of our clients, both big and small, have commented on the home away from home feeling at the Rosedale on Robson. We are a nice comfortable three-and-a-half star hotel in which corporate clients and other travelers can feel at home. The way in which we constantly refresh the building, by painting the rooms every year and updating the rooms every three years, also draws customers to the hotel.

Lastly, where do you see the Rosedale on Robson in two to three years?

The main change will be with technology, as we update our offerings in terms of outlets and wireless internet on a routine basis. Continuity is also important and the Rosedale on Robson will remain committed to its high level of customer service in providing that "at home" feel for which our hotel is known. •



INTERVIEW WITH

Brian Alexander

SALES MANAGER
WESTCOAST RESORTS

Westcoast Resorts opened its first fishing lodge in 1995 and has grown to include four lodges. Could you provide our readers with an introduction to your company?

An angling enthusiast from the US originally established Westcoast Resorts as a single sport-fishing lodge back in 1994. In its nearly two-decade history, WCR had only changed hands once up until HaiCo acquired it in 2011. The company has since grown to be one of Western Canada's largest and most sought-after angling experiences.

What is the benefit of being owned by and partnering with HaiCo?

New partnerships with HaiCo's forestry, seafood and eco-tourism sectors offer exciting opportunities to have a much greater role in the protection and management of British Columbia's precious natural resources. WCR also has always maintained close relationships with First Nations communities along the coast, but we are now able to give back in a far larger capacity than ever before. This has become a true sense of pride organization-wide.

Let's turn our attention to your fishing lodges, where are they located and what amenities do they provide?

Westcoast operates four floating lodge facilities on a seasonal basis [May-September] along British Columbia's pacific coastline. Hippa Island and Englefield Bay are located on Haida Gwaii [formerly known as the Queen Charlotte Islands – the name was officially changed in 2009], while Whale Channel and Milbanke Sound lodges are located on the central coast. Contrary to the image conjured up when one thinks "fishing lodge", WCR locations are much more like a full-service mid-size hotel; but with personalized service and upscale dining in a completely unpretentious atmosphere. This lends itself very well to a relaxing

getaway! Amenities at the lodges include private rooms and ensuites, bar and lounge, gift shops, hot tubs and much more.

Westcoast Resorts also has a number of adventure and corporate packages. Which options are available for your corporate clients?

One of the things that truly make WCR unique is the ability to customize the experience to the individual. Multiple lodge locations offer our guests so much choice- we can make recommendations that will suit any age, experience level or preference- from targeting a specific species of fish, to a choice between calm protected or adventurous water conditions. We host every type of client, from old fishing buddies, couples and father-son anglers to corporate groups, charity fundraisers, incentive/awards recipients and much more!

Stays span either 4 or 5 days and our facilities can accommodate groups as small as two and as large as 58 guests at our largest location. Another thing that makes a WCR package unique is that it is largely all-inclusive (alcohol, gratuities etc are extra); the industry has a reputation for adding-on endless additional expenses and our guests really appreciate being free to relax without having to worry about a surprise bill at checkout time.

What percentage of your clients would you designate as corporate?

It may come as a surprise, but roughly 70% of WCR clients stay at our lodges on a corporate excursion, most of which return to their favorite WCR lodge location on an annual basis. The majority of these guests are from the North American resource industry. We have experienced a steady increase in bookings from the mining sector over the past few seasons, so have recently joined the Mining Suppliers Association of British Columbia (MSABC) and will be attending PDAC in Toronto this year in

effort to meet the demand.

Westcoast Resorts also has a number of promotions, both in terms of special events and direct flights.

Westcoast Resorts has promoted special direct flight packages for a number of years. Guests enjoy the option to depart from Victoria, Edmonton or Calgary for select trips, offering both convenience and the opportunity to spend more time fishing and less time traveling.

WCR host several annual special events, the most notable being The Salmon Masters Tournament. This exciting event is the largest cash jackpot salmon tournament in North America and will be celebrating its 12th year this season. There is a staggering \$360,000 in prizes to be won between the 126 competitors, who also help raise funds for two worthy charities; the Pacific Salmon Foundation and Prostate Cancer BC.

There is also the Messina Family Classic, which as the name states, is geared towards families and takes place late June. Lastly, there is the Couples and Wine Makers Weekend where representatives from a British Columbian winery team up with our executive chef, providing a truly special getaway.

We are also able to plan special events for our clients and host several special fundraising tournaments for various organizations each season.

Lastly, moving forward, when Global Business Reports returns in two to three years' time where will we find Westcoast Resorts?

Rest assured that in five years time, Westcoast Resorts will be bigger and better than ever! We have sights set on further developing our product and expanding operations in our most productive and popular areas, allowing us to meet the demands of an increasingly global marketplace. You'll have to stay tuned for updates! •

INTERVIEW WITH

Hannah Enkerlin

GENERAL MANAGER
DAYS INN



.....
 Could you provide us with a brief introduction to the Days Inn Vancouver Downtown location?

The Days Inn Vancouver Hotel was built in 1918, making it almost 100 years old. It is a hotel with old world charm but also modern amenities. The hotel currently has 30 employees with 85 rooms. We offer regular and off-season rates and also special rates for corporate clients. Our corporate rates include complimentary daily passes to YMCA Fitness & Health, free WiFi and \$10 breakfast vouchers for use at our restaurant. In addition, this location is in prime real estate in downtown Vancouver, only five blocks away from Vancouver's Convention Center and stunning waterfront.

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www.daysinnvancouver.com

How would you describe the breakdown of your clientele?

Today, online booking through travel agencies comprises 60%, wholesalers that offer tour packages to explore the British Columbia area make up 20% and another 20% is a mix of corporate and government guests. We believe that there is room to increase that 20% and are focused on having the mining industry make up as much as 30% of our business. We want to target the mining industry in particular so that we can learn and cater our services to their specific needs. We want to be the place they call home.

What are some of the services that this Days Inn location offers to business clients and specifically those in the mining community?

We have been working to enhance our facilities to cater to our business clients, particularly those in the mining industry. With clients from all over the world, we recognized the need to create a business center where they can do everything from print their boarding passes to have small meetings in the space that we provide. In addition, we have upgraded our WiFi. If we have a mining professional from Colombia that needs to conduct a meeting online they have excellent connectivity without having to worry about the conversation being dropped. In addition, we are sensitive to the fact that these mining professionals tend to have longer stays in our hotel so we are taking the hotel to the next level and giving it a facelift. Most rooms come with a microwave and mini fridge and we are in the process of upgrading our fifth floor, which will be our corporate floor. We are taking out the carpet to reveal the Canadian hardwood floors below and are having furniture custom made to give the rooms a more contemporary feel.

In terms of dining options, we have a restaurant downstairs that serves as a quiet place to have breakfast and an award winning pub, Butcher & Bullock, in the same building. This pub is where local business professionals go after work and allows our guests who come from different regions to get an authentic, not touristy, feel for what it is like in downtown Vancouver after working hours.

What differentiates this hotel from the other hotels available in the downtown area?

The Days Inn's slogan is "The Best Value Under the Sun" and this location truly does offer that. Our location is surrounded by a number of very fine hotels, but this is the only three star affordable hotel in this very popular part of the city. The location, the quality of the service and the amenities for the business professionals make this a real value proposition.

As a final word to our readers, when Global Business Reports returns in two to three years' time to complete another editorial on Vancouver, where will we find Days Inn Vancouver Downtown?

In three years from now, we will have completed the enhancements to our building. We will have a number of clients from the mining industry (I have recently also joined WIM (Women in Mining)) and the experience to really be able to cater to their needs. •

INTERVIEW WITH

Aliya Bhatia



GENERAL MANAGER
HAMPTON INN & SUITES HOTEL

Could you provide us with a brief history and introduction to this Hampton Inn & Suites location?

With over 1,800 locations in North America, Europe, and India no matter which Hampton® by Hilton property our guest visit, they always get the full Hampton experience. We offer a clean and fresh Hampton bed®, free high-speed Internet access, free, hot breakfast served daily, friendly, helpful service, guaranteed. If you're not satisfied, we do not expect you to pay!

While Hampton Inn Hotels fit under the umbrella of the Hilton brand, we are independently run and operated. This Hampton Inn location sits under the banner of Mayfair Hotels and Resorts, which owns and operates 13 properties in Vancouver's lower mainland and the islands. The hotel is well situated in the downtown area as it is near a number of entertainment and restaurant options and very close to the Yaletown and Gastown neighborhoods.

The Hampton Inn & Suites by Hilton Downtown Vancouver has 132 guestrooms including jetted tubs and one bedroom suites with fully equipped kitchenettes. We operate as a full service hotel and have an onsite coffee shop, a restaurant that specialized in craft beer, a hair salon, a gift shop and a ticket office. The rates at the hotel provide outstanding value catering to a wide demographic. The majority of our guests are corporate clients and potentially, 20% to 25% are from companies with either direct or indirect relations with the mining or oil & gas industries.

What are the factors that contribute to the Hampton Inn growing faster relative to other hotels under Hilton?

The Hampton Inn offers great value, which is what people are looking for; it's not simply about which rate is cheaper. You seldom find hotels locally, like the Hampton Inn & Suites by Hilton, that offer services already incorporated into the room rate. Another contributing factor is our outstanding service. Through research via third-party consumer reviews, this Hampton Inn & Suites by Hilton location is at the top range of customer satisfaction and with that comes more opportunities. Lastly, people recognize the brand and know the product that we have to offer and subsequently clamor for more.

What are some of the services that this Hampton Inn & Suites by Hilton Hotel offers to corporate clients?

The corporate clients that stay here are very straight-forward. They require a nice room, a clean bed and tend to be in and out of the hotel. These guests are always on the go and want things done fast and right, so we work to accommodate those needs. In the morning, if they do not have time to enjoy our hot breakfast, they can easily grab a breakfast bag, which includes a bottle of water, a muffin, fruit and granola bars, to go readily available at front desk. If their office is downtown, we can drop them off with our complimentary shuttle service so that they

do not have to worry about one-way commute as they run to their meetings. These aspects add value and put the Hampton Inn & Suites by Hilton in a good position in terms of our competitors.

For onsite business amenities, the Hampton Inn & Suites offers four separate meeting spaces. The small meeting rooms can accommodate about 10 to 15 people while our largest room can hold up to 60 people. These rooms are soundproof bright with natural lights and offer complimentary use of basic audiovisual equipment and high-speed internet access. The only charges are for use of the teleconference phone, LCD projector and the optional catering that the Hampton Inn & Suites Hotels by Hilton provides through its onsite restaurant. •

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Rosewood Hotel Georgia

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www.rosewoodhotels.com

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INTERVIEW WITH

Judy Adams

REGIONAL GENERAL MANAGER, VANCOUVER
COAST HOTELS

Please provide our readers with a brief introduction to Coal Coast Harbour Hotel and the history of this location.

This particular property was built in 2009 and opened January 15, 2010, just before the 2010 Winter Olympics in Vancouver. We are currently going into our fourth year of operation and this particular hotel is one of the most recent built by Coast Hotels and Resorts. The Coal Coast Harbour Hotel is one of two Coast Hotels in Vancouver, in addition to the Coast Plaza Hotel & Suites on the corner of Comox Street and Denman Street in Vancouver's vibrant and colourful West End.

What is the capacity of this location and could you talk about the amenities at Coal Coast Harbour Hotel?

There are 220 rooms at this location and there are three different categories: Comfort, Superior and Premium. All the rooms are furnished with either two doubles- or one king-sized bed. Recently, Coal Coast Harbour converted 37 of our double bed rooms into king sized, as our corporate clients tend to prefer king sized beds in all room categories: Comfort, Superior and Premium rooms. One of the things we pride ourselves on is listening to the feedback of our customers and adapting our services to their needs.

In addition to your high level of customer service, what do you believe attracts corporate clients to Coal Coast Harbour Hotel?

One of our main selling points is our proximity to the business district. Location plays a large role in attracting and retaining customers, but there are also a number of other factors. Coal Coast Harbour is a new hotel; it is clean, efficiently run, and modern. We cater to business travelers and in doing so have ensured that the amenities they require are on site. While 46% of our business is leisure, 30%

of our travelers are from the corporate sphere. For these clients we have created corporate group and local meeting packages. The latter is for small- and medium-sized meeting spaces in our break-out rooms. In addition, our 5,000 square foot ballroom offers 20' ceiling and views of the harbor and North Shore Mountains.

We cater to all meal periods including informal gatherings, technical meetings and elaborate Gala events. Coast Coal Harbour Hotel participates in many charitable events giving back to our community. Coast Coal Harbour Hotel partners with small- to medium-sized companies, particularly those within the mining sector. It is a sector in which we are growing our client base and are looking to expand.

What do you believe differentiates the Coast Hotels and Resorts brand?

Genuine customer service, as our tagline says, is always being, "Refreshingly Local". It has proven true as we are seeing an increase of business from small- and medium-sized companies. There has been a noticeable increase both in companies utilizing our meeting spaces and providing accommodations for their international clients and investors at our hotel. We also have a "Company of the Month" program, which recognizes two companies each month, with one coming from our established key clients and one from the pool of our new clients. These travelers receive an upgrade to the next room category during the following month, in addition to a welcome gift and a food and beverage discount in Prestons' Restaurant.

The tagline for your restaurant, Preston's, is, "Canadian-inspired comfort food," what does that entail?

Coal Coast Harbour is looking to differentiate Prestons' Restaurant, our in hotel dining op-

tion. Coast Hotels and Resorts has three Prestons' locations and they have become quite the fixture in their communities; the "place to be" for social gatherings and events. Canadian comfort cuisine is all about celebrating traditional Canadian food and the culinary experiences of the various cultures that make up our multicultural country.

As a final word to our readers, where do you see Coal Coast Harbour Hotel in two to three years' time?

Every year we continue to add to our environmental stewardship and sustainability programs. In particular, this hotel has undertaken a number of green initiatives; from waste management to energy conservation. Coal Coast Harbour has a zero-waste program, which is important to our corporate clients. Moving forward, we are installing two electric car charging stations, in response to the requests of our clients. Overall, we will continue to provide efficient, personalized service, while ensuring our clients have the business amenities they require. •



INTERVIEW WITH

Vikram Vij

CEO, CHEF & RESTAURATEUR
VIJ'S

Your restaurants are the culmination of a life-long passion for cooking, particularly in the various styles of your native India. Could you provide our readers with a brief background of how your culinary evolution began?

I was born and brought up in India before moving to Salzburg, Austria, to receive my chef's papers. When I moved to Canada I wanted to showcase that Indian food was not just your mainstream ethnic cuisine. The goal was to show that Indian food was as complex as French, Italian or any other cuisine in the world. I had a very strong desire to change the perception of Indian food and to bring awareness to the culinary experience and culture of the country where I spent my first 20 years. Everyone has their calling in life and this became mine. When the restaurant was opened we looked not to provide mainstream Indian cooking but rather unique dishes in a non-hierarchical manner, with no reservations and a first-come, first-served policy. This restaurant is an extension of our home and the way in which I would entertain my guests, with wine, conversation and appetizers before the main meal.

Vij's Restaurant, established in 1994, has been described as "easily among the finest Indian restaurants in the world", by the *New York Times*. What sort of experience do patrons have when they enter this establishment?

Patrons will find that this is a personal restaurant, an extension of me. But more than that, it is a busy, crowded restaurant with tables of two and four that has the communal feeling. It does not matter who our patrons are, they are treated the exact same way; equality is the philosophy of the restaurant. Vij's Restaurant opens at 5:30pm, with our line beginning at around 4:45pm, given that the restaurant fills up right away. The seating capacity of the restaurant is 65 seats, with a few seats in the

bar/lounge while you wait for a table. The kitchen never closes, though the line is closed at 10:00pm.

You have been very entrepreneurial with your craft, which has included the establishment of Vij's Rangoli, a casual restaurant-market hybrid. Has the restaurant become a hub for lunch meetings, given that it caters to customers on the go?

Many of the diners are Rangoli live and work in the surrounding area, including a large number of mining executives. They come to the restaurant for a quick and comfortable meal at lunchtime. The ready-made meals sold at Vij's Rangoli are a favorite among executives and professionals who may not have the time to cook at home. Instead, they can buy our frozen meals and heat them up quickly to enjoy the taste of a home cooked meal, without all the work!

You have also decided to take your cooking mobile, with Vij's Railway Express, which you have described as a "creative and mobile exploration of the culinary diversity of India." What was the thought process behind establishing a food cart in Vancouver?

Vij's Railway Express was based upon my yearly travels to India, where I go to peoples' homes to learn how to cook. Railway Express is an extension of these travels, of the culinary experience of India's small towns and villages. I bring these recipes back to showcase the diversity of cooking from little known regions, to highlight their unique dishes. The idea was to bring unique curries, kabobs and other dishes as our style of street food to the downtown core and other neighborhoods of Vancouver.

Given your previous expansions with Rangoli, Railway Express and your wife, Meeru's

Seattle-based restaurant Shanik, where are you looking to take the Vij brand in the near future?

I am opening up a new restaurant in south Surrey called My Shanti by Vikram Vij, which is also inspired by my travels. Unlike Railway Express, My Shanti will be based on my global travels and will incorporate flavors and dishes from Peruvian, Turkish, Indian and Afghani cuisine, among others. While the restaurant will showcase global fare, the overarching commonality is that I have traveled to these countries, experienced the depth of their cuisine and in turn, selected these dishes and ingredients.

Besides moving away from this orientalist view of Indian cuisine and culture, which other factors define the Vij brand?

The uniqueness of our dishes is what makes our restaurants stand out; to the point that our patrons have not and will never have them anywhere else. Once you have had the Vij's chicken curry, lamb curry, short ribs or fish curry nothing will compare.

As a final word to our readers, when Global Business Reports returns in two to three years' time where will find the Vij's brand?

In two to three years' time we will have a total of five restaurants. With regards to our brand of foods, Vij's At Home, we are looking to expand our reach across the country and into the US. My plan is to bring my Indian food back to India, particularly my chicken curry. Chickens raised in British Columbia are antibiotic free and the quality of the meat is superb and I want to highlight Canadian food safety and the deliciousness of locally-sourced ingredients from British Columbia. •

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), who GBR are proud to partner with, remains the benchmark for mining information around the world. Also of particular interest to the mining industry and Vancouver companies around the world, given the increasing interest from Chinese investors, is NAI 500 news source (en.nai500.com) and the sister company NAI Interactive (www.naiinteractive.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 2014 are listed below:

Prospectors and Developers Association of Canada (PDAC)

March 2 to March 5
Toronto, Ontario
www.pdac.ca

The annual PDAC International Convention, Trade Show and Investors Exchange is the world's largest, attracting over 1,000 exhibitors and 30,000 attendees from more than 125 countries.

Nunavut Mining Symposium 2014

April 7 to April 10
Iqaluit, Nunavut
www.nunavutminingsymposium.ca

CIM 2014 Convention

May 11 to May 14
Vancouver, British Columbia
vancouver2014.cim.org

Hosted by the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), the CIM 2014 Convention will boast a conference and exhibition, in which over 500 companies are expected to exhibit.

The Northern Mines Expo

May 28 to May 29
Timmins, Ontario
www.canadianminingexpo.com

World Resource Investment Conference

June 1 to June 2
Vancouver, British Columbia
cambridgehouse.com

Hosted by Cambridge House, the annual World Resource Investment Conference brings



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together exploration and production companies
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.....

3rd Annual Global Sustainable Mining Summit

June 25 to June 26
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energy.fleminggulf.com

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Hon. Byron Chan, Minister, **Ministry of Mining**, Papua New Guinea



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INTERVIEW WITH

Ross Gallinger

EXECUTIVE DIRECTOR
PROSPECTORS AND DEVELOPERS ASSOCIATION OF CANADA (PDAC)

What will be the main highlights of the upcoming 2014 PDAC Convention? Could you give us the latest figures in terms of number of stands, delegates etc?

The Technical Program features talks by industry experts that reflect the PDAC's year-round advocacy work as the leading voice of Canada's mineral exploration and development sector. The program opens on Sunday, March 2, with the Commodities and Market Outlook session, and includes other sessions such as Maximizing Company Profits and Growth by Acquisition, a keynote session on Sharing Mineral Wealth, along with other sessions on Geometallurgy, Working with BRIC Countries, Geophysics, and Alternative Financing Sources for Junior Resource Companies.

There will be over 530 mineral exploration companies participating in the Investors Exchange, and over 400 suppliers of services and products at the Trade Show. The PDAC 2014 Convention will also host 19 Technical Sessions, 60 Core Shack displays, 13 Short Courses and numerous other workshops.

Peru is both a global hotspot for mining investment and the country sponsor for PDAC. Which other jurisdictions do you expect to attract attention this year, and how can PDAC help them raise their global profile?

The PDAC Convention has consistently been the largest mineral industry event in the world for a number of years. The annual convention is an opportunity for industry experts to come together, network, share best practices, and new, innovative techniques in exploration and development.

In 2013, 25% of convention delegates were international: reflecting the evolution of the convention from a national event into an international one. Outside of Canada, the largest number of attendees in 2013 came

from the United States, Australia, Peru, Mexico and England.

Given the state of the current markets and the difficult access to capital for exploration companies, how important is it for mining players to be present in events such as the PDAC Convention?

The convention is designed to help individuals and companies find creative answers to the challenges they face, as well as provide a wide breadth of education and networking opportunities. This year's convention will focus on the major trends and technologies shaping the industry, and will include an array of courses, workshops and presentations that discuss the challenges our sector faces and how our members can prepare and adapt to such challenges.

Asian companies are increasingly acquiring assets around the world. In this context, how will this affect the role of Canadian companies in the global scene moving forwards?

Canadians have been successful in grass-roots discoveries and evolving discoveries into projects, which have been acquired by others, including Asian companies. Buyers, regardless of their origin, help fuel the exploration business model for Canadians.

Gold price has fallen from nearly \$1,700 to below \$1,200 in just one year. How do you expect metal prices to evolve in 2014?

We do not make metal price predictions. The industry is working toward improving their margins through cost containment and struggling through the current climate. The drop in financing grass roots exploration is a bigger concern currently, and our efforts have been directed at facilitating access to capital (such as advocating for the Mineral Exploration Tax Credit renewal) and reform-

ing capital markets through changes in securities rules.

Besides the Convention, what are the main initiatives of PDAC for 2014? What is the state of Mining Matters and other significant programs?

PDAC priorities have been centered on:

- Access to Capital (as described above)
 - Access to land (regulatory certainty with respect to land tenure, exploration activities and development); inclusion of mineral potential in land use decisions; adding considerations of mineral potential in protected areas discussions
 - Aboriginal affairs (improving aboriginal participation and relationships)
 - CSR
 - Safety – partnering with AME BC on statistics; development of a health and safety manual for exploration
 - Student Programs – Student-Industry Mineral Exploration Workshop (SIMEW)
 - Communications – improving our member communications and public communications
 - Advocating for Public Geoscience
 - Resource Revenue Transparency
- Mining Matters continues to provide public education on geosciences, but also has aboriginal programming and outreach programming. Over 550,000 students have taken Mining Matters programs. •

GOVERNMENT, ASSOCIATIONS AND ORGANISATIONS

Association for Mineral Exploration BC (AME BC)	12, 13, 16, 37, 130
First Nations Energy and Mining Council of British Columbia	108, 110, 130
Mining Suppliers Association of BC (MSABC)	67, 119, 130
Ministry of Energy and Mines	10,,12

MINERAL EXPLORERS AND PRODUCERS

Anglo American plc	18, 19, 22, 32
Argentex Mining Corp.	38, 39
Avanti Mining Corp.	18, 19, 25, 26, 29, 102
B2Gold Corp.	38, 39, 41, 42, 102, 103
Barkerville Gold Mines Ltd	18, 19, 22
Bear Creek Mining Corp.	38, 39, 46, 48, 103
Canarc Resources Corp.	18, 19, 26, 49
Cayden Resources Inc.	38, 39, 40, 44
Chieftain Metals Corp.	18, 19, 26
China Gold International Resources Corp. Ltd	38, 39, 42, 43, 103, 105
Colorado Resources Ltd	13, 16, 17, 18, 19
Copper Fox Metals Inc.	11, 14, 18, 19, 23, 66
Copper Mountain Mining Corp.	18, 19, 22, 23, 24, 26, 100
Endeavour Silver Corp.	38, 39, 46, 47, 49
First Majestic Silver Corp.	38, 39, 47
Fission Uranium Corp.	38, 39, 55
Happy Creek Minerals Ltd	16, 18, 19, 21
Hillsborough Resources Ltd	18, 19, 22
Huldra Silver Inc.	18, 19, 22
Hunter Dickinson Inc.	12, 23, 32, 67
Imperial Metal Corp.	18, 19, 22
Lupaka Gold Corp.	38, 39, 42, 45
Mineral Mountain Resources Ltd	38, 39, 40
New Gold Inc.	13, 16, 18, 19, 22
NovaGold Resources Inc.	38, 39, 40, 51, 102, 107
Panoro Minerals Ltd	38, 39, 50, 52
Pilot Gold Inc.	38, 39, 42
Pretium Resources Inc.	13, 18, 19, 27, 66, 112
Seabridge Gold Inc.	18, 19, 25, 27, 76, 104
Silver Standard Resources Inc.	38, 39, 46, 112
Taseko Mines Ltd	18, 19, 22, 32
Teck Resources Ltd	11, 16, 18, 19, 21, 22, 66, 78, 90, 95, 97
Thompson Creek Metals Co.	18, 19, 22
Tintina Resources Inc.	38, 39, 50, 51
Victoria Gold Corp.	38, 39, 106
VMS Ventures Inc.	11
West Cirque Resources Ltd	12, 18, 19, 22, 25, 31
Western Lithium USA Corp.	38, 39, 54
Western Potash Corp.	37, 38, 39, 53, 57
Yellowhead Mining Inc.	12, 18, 19, 20, 25

ENGINEERING, CONSULTING AND ENVIRONMENTAL SERVICES

ABC Recycling	94, 97
AMC Consultants	93
BC Hydro Power Smart	23, 33
BioteQ Environmental Technologies Inc.	76
CH2M HILL	22, 82, 84, 85, 108, 130
CWA Engineers	58
Fluor Canada	16, 17, 78
Hatch	37, 61, 63
Knight Piesold	30, 61, 62, 130
McElhanney Consulting Services	61, 64, 65, 130
O'Kane Consultants	77, 90
ERM Rescan	76, 102, 104
Snowden Mining Industry Consultants	36, 88
Stantec	37, 108, 118
Tetra Tech	11, 52, 66
TOMRA Sorting Solutions	76, 81
Xstrata Technology	76, 83
Xylem	76, 77

SOFTWARE, TESTING, EQUIPMENT AND OTHER

Gekko Systems	36, 86, 87, 130
Maxxam Analytics	90
Met-Solve Laboratories	36, 89, 91
Motion Metrics	71
Pacific Blasting & Demolition	95, 98, 99, 130
RMS-Ross Corp.	90, 92
Sepro Systems	36, 91
Superior Propane	94, 96, 102
Wenco International Mining Systems	68, 74, 75, 130

FINANCIAL, LEGAL AND HUMAN RESOURCES

BDO Canada	34
David Aplin Group	37
Delta Pacific Benefit Brokers Ltd	67, 69
Dentons Canada LLP	11, 26,, 56
Fasken Martineau LLP	6
Gowling Lafleur Henderson LLP	14
Immersive Technologies and ICOM	68
Lawson Lundell LLP	113
McCarthy Tetrault LLP	12, 36
Miller Thomson LLP	108, 111
Rakia Recruiting	67, 70
SkillPlan	68, 72, 73, 130
TPD	67

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Association for Mineral Exploration BC (AME BC)

www.amebc.ca

First Nations Energy and Mining Council of British Columbia

www.fnemc.ca

Mining Suppliers Association of BC (MSABC)

miningsuppliersbc.ca

Ministry of Energy and Mines British Columbia

www.gov.bc.ca/ener

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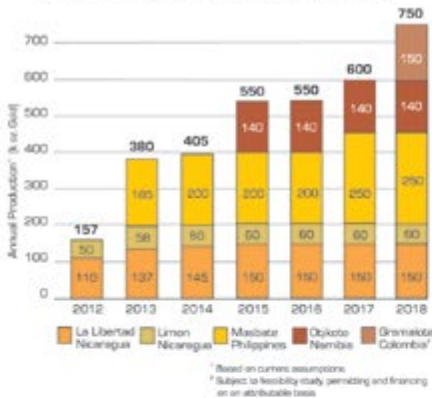
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Projected Gold Production



TSX: BTO
NYSE MKT: BTG
NSX: B2G

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GROWTH



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- **Three producing mines** - La Libertad (Nicaragua), El Limon (Nicaragua) and Masbate (Philippines)
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- **Three mine development projects** - Jabali, La Libertad Mine (Nicaragua); Otjikoto (Namibia); and Gramalote (Colombia)
- **Construction underway at Otjikoto** - production expected Q4 2014
- **Several high quality exploration projects**
- **Strong financial position** - strong balance sheet and operating cash flow
- **Proven management team** - former management of Bema Gold, exploration, financing, development and production experience



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