

# RESOURCEWORLD

INVESTMENT OPPORTUNITIES AND NEWS **magazine**

August/September 2016 | Volume 14 Issue 5

## BRITISH COLUMBIA'S GOLDEN TRIANGLE

## Exploring Québec

## GOLD OUTLOOK

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## DEPARTMENTS

### EDITOR'S COMMENTS 5

Mining stock bull run looks to have legs

by Ellsworth Dickson

### OFF THE WIRE 37

Starcore International Mines Ltd.  
Probe Metals Inc.

### COMING EVENTS 64

Advertisers' List 64

### EPILOGUE 66

Financing opportunities open up for quality projects

by David Duval



## FEATURE

The Golden Triangle of British Columbia 6

by Dr. Edward Schiller

## QUÉBEC EXPLORATION

Québec exploration recovering after four-year downturn 14

by Simon Rees

Osisko Mining expands Windfall Lake gold deposit 17

Stornoway Diamond building Québec's first diamond mine 18

HPQ Silicon Resources plans silicon mining/metal production 19

Québec Mining Companies 20

Sirios Resources intersects high-grade gold at Cheechoo 21

Canadian Government commits to implementing United Nations Declaration of the Rights of Indigenous Peoples 36

by Robert Simpson

## INVESTMENT

### INSIGHTS & INVESTMENTS 22

Marathon Gold: building gold resources toward a PEA

by Barry Muir

### AT THE MARKET 24

Sell in May – No Way!

by Rodney Blake

### SPECULATIONS 25

Are China and Russia heading toward a gold standard?

by Leonard Melman

### BROKER'S PICKS 26

Winston Gold Mining envisions small high-grade operation

by Stew Vorberg

What investors should look for in a lithium company 27

by Ellsworth Dickson

## MINING

Golden Predator's high-grade gold 3 Aces Project 28

by Ellsworth Dickson

A perfect storm for precious metals 29

by Thomas Schuster

Golden Queen Mining moving towards full production 30

Iconic Minerals starts lithium brine project drilling 31

by Ellsworth Dickson

Argonaut Gold targets mid-tier status 32

### AUSTRALIAN UPDATE 33

Orocobre increasing lithium carbonate production

by Greg Barns

### NEW DISCOVERIES 34

Xtra-Gold finds new gold zones at Cobra Creek in Ghana

92 Resources confirms lithium occurrence; starts program

Golden Arrow Chinchillas pre-development program underway 38

Nicola Mining: a new start with cash flow 40

by Ellsworth Dickson

Transition Metals: an active project generator t 42

by Jennifer S. Getsinger, PhD, PGeo

Prosper Gold defining drill targets at Ashley gold prospect 43

Strongbow Exploration acquiring UK tin project **44**

West High Yield Resources planning magnesium mine **45**

Viscount Mining – Sumitomo cleared for Nevada drilling program **46**  
by Ellsworth Dickson

Largo Resources to target vanadium battery market **47**  
by Peter Kennedy

Maverix Metals: the timing is right – new emerging metal streamer **48**  
by Andrew Nelson

Q-Gold Resources drilling promising VMS target **50**

Pan American drilling Kootenay's Promontorio-La Negra prospects **50**

Dominion Diamond to develop Jay diamond project **51**

Cobalt: a critical commodity **52**  
by Troy Nazarewicz

Huge helium reserve discovered in Tanzania, Africa **62**  
by Kathrine Moore

## MINING WORLD

Industrial Fabrication: purpose built mining equipment **54**

by Kathrine Moore

WipWare's Solo system: innovative on site material monitoring and analyses **56**

by Kathrine Moore

Phoenix Extreme Conveyor Belt Solutions **56**

## OIL & GAS

THE OIL PATCH REPORT **58**

ARC Resources producing 10,000 barrels/day in northeast BC

by Bruce Lantz

AltaGas signs British Columbia propane MOU **59**

by Bruce Lantz

## GREEN TECHNOLOGIES

Developments in Green Technologies **58**

by Jane Bratun

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Co-Publisher  
Editor-in-Chief  
Ellsworth Dickson

Editor  
Kathrine Moore

Co-Publisher  
Paul Dickson

Contributing Editors  
Dr. Edward Schiller  
David Duval  
Robert Simpson

Contributing Writers  
Laura Barker • Rodney Blake  
Jane Bratun • Jennifer Getsinger  
Peter Kennedy • Bruce Lantz  
Leonard Melman • Barry Muir  
Andrew Nelson • Troy Nazarewicz  
Thomas Schuster • Stewart Vorberg

Australian Correspondent  
Greg Barns

Art Director, Production Manager  
Jocelyne Laflamme

Circulation  
1-877-484-3800

Advertising  
Irene Fournier, Advertising Manager  
Jessica Katrichak  
1-877-484-3800

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## EDITOR'S COMMENTS

Ellsworth Dickson

# Mining stock bull run looks to have legs

For some time *Resource World* has noted that many quality mining stocks were so low in value that there was no use in relying on fundamentals to figure out what they should be worth. Between generally falling commodity prices, a slowdown in China's industrial activity and a relentless overriding negative investor sentiment, mining stocks suffered a multi-year downturn. That is now history as many quality mining stocks have increased in value 200%, 300% and more.

Mining analyst gurus such as Sprott's Rick Rule encouraged mining stock investors to acquire quality mining stocks when they were ridiculously low priced. He added that when the tide turned it would be "explosive". He was right. "We are in the beginning of a bull market," he said at a recent resource investor conference. He also noted that the greatest fear that investors should have is themselves; that is, how they pick stocks and when to buy and sell.

It was February when the action started. Some mining stocks like Golden Arrow

Resources are up 500%. Indeed, after four years of suffering, gold and mining stocks are the hottest investments on the planet. The Top 10 performers on the S&P/TSX Composite Index for the first half of this year were all mining companies.

Here are some of the reasons for the precious metals stock recovery:

- Mining stocks were oversold
- Ridiculously low quality mining stock prices set the stage for a comeback
- Exploration and mining companies can now raise funds (more private placements at higher dollar figures)
- Tremendous demand for gold by some countries and individuals
- Fears that US monetary policy is not working; printing more money delays pain and devalues dollar in relation to gold
- Quantitative Easing has not generated economic growth
- US debt is unserviceable
- Fear of US dollar collapse
- Brexit fears generated uncertainty

- European economies and banks are in trouble
- Various political uncertainties
- Gold is perfect hedge for the above problems

Credit Suisse is of the view that gold could reach US \$1,500/oz in early 2017 while other analysts are more bearish and think gold could fall below \$1,000/oz. Silver, being both money and an industrial metal, has different fundamentals. Some forecasters are predicting it to rise to between US \$25 and \$32/oz by year end. So far, it has done well and is holding at around US \$20/oz.

Some mining analysts like copper and zinc for mid-term investments. Since it costs more to produce uranium than what it sells for, with 509 nuclear reactors planned, ordered and proposed plus 62 under construction, as well as Japanese reactors coming back on line, a rise in the price of uranium and uranium stocks is inevitable – just not next week.

So now the questions are: Is this rising mining stock valuation situation sustainable, will it plateau or will there be a temporary correction? Unless you are a nimble trader, "irrational exuberance" stock valuations are pretty dangerous as they can't last. However, many quality mining stocks, while having 200% price increases, are still below prices of a few years ago.

There looks to be still some "rocket fuel" left. ■

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Email: editor@resourceworld.com  
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Setting up a diamond drill pad at Colorado's KSP property 15 km southeast of the former Snip Mine. Photo courtesy Colorado Resources Ltd.



# THE GOLDEN TRIANGLE OF BRITISH COLUMBIA

Summer exploration is heating up in this mineral-rich region

by Dr. Edward Schiller

**T**he Golden Triangle, located in British Columbia's Skeena Mining District is one of the most prolific mining areas of the Canadian Cordillera. BC's Golden Triangle is on the verge of exciting times for explorers and mine developers as it moves again into a golden

era sure to satisfy an industry looking for a payday for investors. The Golden Triangle, in BC's northwestern corner, adjacent to Alaska's panhandle and the town of Stewart, is in a phase of revival not seen since the days of the 1990s when two high-grade gold mines opened. When those

mines eventually closed down, due to uncertain metal prices and infra-structure deficiencies, the area became economically dormant.

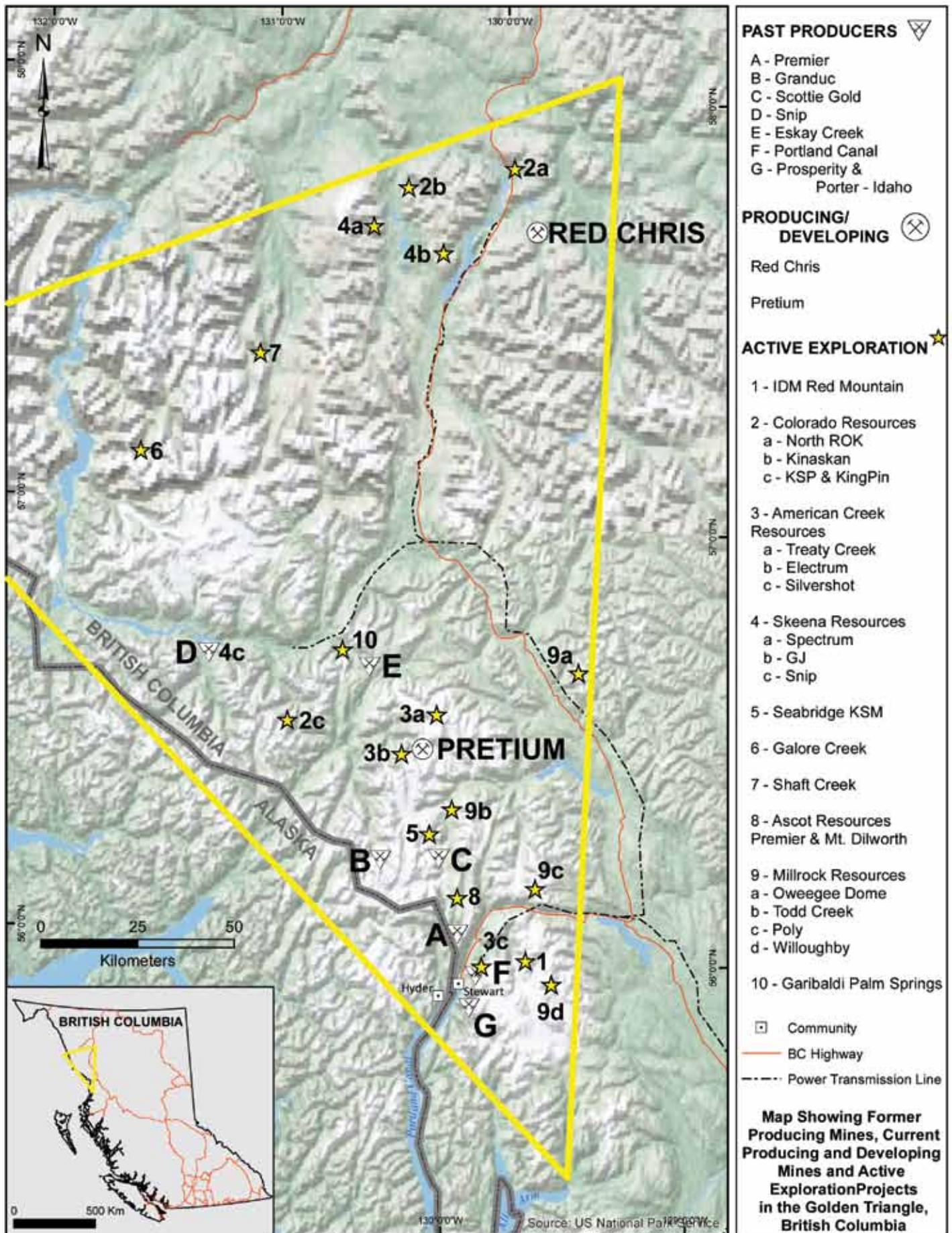
Activity in the Golden Triangle has dramatically increased with the discovery of a world-class gold deposit by Pretium

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Map courtesy Colorado Resources/Allan Jacobs.

Resources at their Brucejack Project, scheduled for production in 2017. As well, the installation of a 344 km-287 kilovolt power line to the nearby Red Chris producing copper-gold mine provides power to this part of the province.

The adage that you find mines where there are mines has again proven to be true and the Triangle is now where the action is with dozens of companies on the ground performing all phases of exploration – many fairly advanced. Supporting the favourable geology containing a wide range of mineral deposits comprising high-grade gold veins, porphyries and volcanogenic massive sulphides is the town of Stewart with its year-round, ice-free, ocean port at the head of the Portland Canal.

**HISTORY OF GOLDEN TRIANGLE**

Some of the fame of the Triangle goes back over 100 years but its glory days were in the mid-1980s with the discovery of the

Snip deposit that produced over a million ounces of gold grading of 25 g/t which was followed by the Eskay Creek discovery that produced 3.27 million ounces of gold grading 49 g/t and 158 million ounces of silver grading 2,406 g/t.

The earlier fame to the Triangle started with the discovery of the Premier or Silback Premier Mine in 1910 which operated with a few interruptions between 1918 and 1953. Exploration and a limited amount of production occurred since its closure in 1953 and it is now under active exploration by Ascot Resources. Production to date is 42.85 million oz Ag; 1.99 million oz. Au; 547 million pounds Pb; 17.55 million lbs Zn; 4.09 million lbs Cu and 178,000 lbs Cd.

Additional fame ascribable to the Triangle, although with a tragic element to it with the death of 28 miners in an underground disaster triggered by an avalanche in 1965, is the Granduc Mine. Discovered

in 1931 it operated between 1971 and 1984 and produced 420,000,000 lbs copper and is now being explored by **Castle Resources Inc.** [CRI-CSE]. A third operating mine was operated by **Scottie Gold** and produced 105,000 ounces of gold between 1981 and 1985. A number of small high-grade silver mines, notably the **Prosperity Porter-Idaho**, operated adjacent to Alice Arm south of Stewart during the 1930s; it was investigated later with limited success.

Located at the northern edge of the Triangle is the operating **Red Chris Mine** of **Imperial Metals Corp.** [III-TSX; IPMLF-OTC] that commenced production in 2014 with a 2016 annual production target of 90-100 million lbs Cu and 60-70,000 oz gold.

**ACTIVE TRIANGLE EXPLORERS**

Spearheading the Golden Triangle rush is the **Pretium Resources Inc.**'s [PVG-TSX, NYSE] Brucejack Project at the Valley of

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the Kings 65 km north of Stewart. Proven and probable mineral reserves (as of June, 2014) were 6.9 million ounces based on 13.6 million tonnes grading 15.7 g/t. Nearby grassroots exploration and in-fill underground drilling is expected to expand the reserve base of the project. Construction is in progress with commercial production scheduled for Q3 2017. In addition, Pretium has the nearby Snowfield Project that hosts a gold-rich copper porphyry deposit with measured and indicated resources of 25.9 million ounces of gold, 75.8 million ounces of silver and 2.98 million pounds of copper and inferred resources of additional gold, silver, copper, molybdenum and rhenium.

Considered one of the world's largest undeveloped precious and base metal deposits in the making the Kerr-Sulphurets-Mitchell Project of Seabridge Gold Inc. [SKM-TSX] is contiguous to the west of Brucejack. Proven and probable reserves are 2,164,000,000 tonnes grading

0.55 g/t Au, 0.21% Cu, 2.74 g/t Ag, and 44.7 ppm MoS<sub>2</sub> containing 38,200,000 oz Au, 9,888,000,000 lbs Cu, 191,000,000 oz Ag and 213,000,000 lbs MoS<sub>2</sub> with substantial resources in the measured, indicated and inferred categories.


This summer Seabridge will conduct a 10,000-metre drill program to expand the block cave shapes of the planned underground workings. On June 6, Seabridge announced a planned arrangement to acquire all the issued and outstanding shares of SnipGold Corp. based on a formula of 1/63 of a Seabridge share for one SnipGold share. SnipGold, formerly Skyline Gold, was a prominent Triangle explorer in the late 1980s and early 1990s with a sizeable land package unexplored since 1990s.

Noting that the measured and indicated resources of 49 million ounces of gold plus an additional 29 million ounces in the inferred category, Rudi Fronk, Chairman and CEO of Seabridge Gold, told *Resource*

*World*, "We believe there are more resources to be added to the KSM Project. We are continuing to add more gold and copper resources each year since we made the initial discovery at the Mitchell Zone in 2006. We see a tremendous potential remaining there."

He explained that the 2012 Pre-Feasibility Study showed a mine life in excess of 50 years. "Since that time, we have added over a billion tonnes of new material – about 50% more tonnes than in our projected reserves from the 2012 study – and those additional tonnes are coming in significantly higher grade than our existing reserves," said Fronk. "So even though we had projected a 55-year mine life in the prior study, we expect that the additions we made will extend the mine life further."


Looking at the next steps to advance KSM, Fronk said, "We are now in the process of updating the 2012 Pre-Feasibility Study. A lot has changed since that time.



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Gold and copper prices are lower since 2012; however, offsetting that is a weaker Canadian dollar, lower labour and energy costs.”

He said the updated study will be completed in August and will show the impact of the higher grade zones to the economics of the project. “We have made it clear that KSM is too large to build on our own,” said Fronk. “Our plan is to bring in a major mining company as a joint venture partner to do the heavy lifting in terms of construction and operation of the mine and we continue to dialogue with many of the large gold and copper-based companies.”

Two projects with sizeable tonnages and potentially economic grades awaiting future government approvals that demonstrate the magnitude of the Triangle and precursors to what the Triangle contains are Galore Creek and Schaft Creek. Galore Creek is a project owned by **NovaGold Resources Inc.** [NG-TSX, NYSE MKT] and **Teck Resources Ltd.** [TCK.B-TSX; TCK-NYSE] and has a prefeasibility study to mine 82,000 tonnes of ore per day to produce 6.2 billion lbs Cu, 4.0 million oz Au and 65.8 million oz Ag over an approximate 18-year mine life.

Schaft Creek is a **Copper Fox Metals Inc.** [CUU-TSXV; CPFXF-OTC] / **Teck Resources** joint venture that hosts a measured and indicated resource of 1,228.6 million tonnes grading 0.26% Cu, 0.017% MoS<sub>2</sub>, 0.19 g/t Au, 1.69 g/t Ag and 597.2 million tonnes inferred resources grading 0.22% Cu, 0.016% MoS<sub>2</sub>, 0.17 g/t Au, and 1.65 g/t Ag.

A company with strong roots to the Triangle is **IDM Mining Ltd.** [IDM-TSXV; RVRCF-OTC] by way of the company’s President Robert McLeod and family with roots starting decades ago with exploration and mining in the Stewart area. The company’s flagship is their Red Mountain Project with measured and indicated resources of 441,500 oz. Au averaging 8.36 g/t Au plus inferred resources of 82,300 oz Au at 7.69 g/t Au and wide open for expansion over a contiguous 16 km long by 4 km wide hydrothermal system. Since 1996, there has been minimal exploration

on the property with increased bedrock exposure due to retreating glaciers.

An updated PEA stated the after-tax base-case economics at Red Mountain indicate an NPV of \$86.6-million at a 5% discount rate with an IRR of 32.3% and a two-year payback of initial capital.

Surface mapping and sampling have identified a new, extensive zone of multiphase veining and shearing, hosting high-grade, intrusive-related, gold-silver-molybdenum mineralization at the Lost Valley area of Red Mountain. This new area was recently exposed by the retreating Cambria icefield. Assays range from trace to 165 g/t Au, averaging 10.5 g/t Au, as well as trace to 1,065 g/t Ag, averaging 81 g/t Ag. A total of 22 samples assayed over 3.0 g/t Au, averaging 30.45 g/t Au.

**Colorado Resources Ltd.** [CXO-TSXV; CLASF-OTC] is the largest junior landholder in the Golden Triangle with five projects totaling over 100,000 hectares. In 2013, Colorado made the North ROK porphyry copper gold discovery in the Red Chris camp – the first new discovery in more than 40 years in this area. Colorado also holds the Kinaskan property located to the north of the GJ Project of Skeena Resources and between Skeena’s GJ and Spectrum Project.

In 2014, Colorado started to assemble the KSP Project by staking and an option to earn 80% with Snipgold in the Snip Camp noting geological similarities with the KSM and Brucejack properties of Seabridge and Pretium located 25 km east. In 2015, Colorado optioned its epithermal gold Heart Peak Project to **Centerra Gold** [CG-TSX] and continued to advance KSP.

In June 2016, Colorado’s KSP option partner Snipgold was acquired by Seabridge who confirmed geological similarities with the KSM- Pretium belt. Colorado subsequently doubled its landholdings in the immediate area of KSP with its acquisition of the Kingpin property, thus totalling an area of > 65 km long between the past Producing Granduc and Snip Mines.

The >300 km<sup>2</sup> KSP property covers over 48 mineral occurrences and >100 km<sup>2</sup> areas

of altered and anomalous rocks associated with the 25 km long Sky trust fault system and covers high-grade gold, porphyry copper gold, skarn and vein occurrences. Some of these areas are highlighted by the Inel occurrence with a 1.5 km<sup>2</sup> area averaging 1.27 g/t Au in soils and an area in the 1980s where 1.2 km of underground exploration was completed and the Khyber Pass area where 1,100 soil samples have returned a remarkable 810 ppb gold average. The > 320 km<sup>2</sup> Kingpin covers over 35 mineral occurrences and geology on trend to the SE of the KSP property and west of Seabridge's KSM property.

In 2016 Colorado is advancing KSP and on July 19 announced it had completed 37 holes totaling > 5,000 m in 30 days with one rig. Assay results from the first eight holes included Hole INDDH16-001 that returned 11.0 metres grading 6.12 g/t Au, 45.74 g/t Ag and 2.18% Zn, including 3.0 metres of 8.60 g/t Au, 37.37 g/t Ag and 4.36% Zn.

Colorado's JV partner Centerra also noted that it was planning to complete up to 2,000 m of drilling at the Heart Peaks Project.

Geologist, Ron Netolitzky, whose fame is part and parcel of the Triangle was directly involved with both the Snip and Eskay Creek discoveries. He now heads Skeena Resources Ltd. [SKE-TSXV; SKREF-OTC] which is exploring the Spectrum gold project, the adjacent GJ copper-gold project and the past-producing Snip gold mine. Spectrum has indicated resources of 290,000 oz Au, 1.82 million oz Ag and 20.835 million lbs Cu. Inferred resources stand at 750,000 oz Au, 2.8 million oz Ag and 54.889 million lbs Cu.

The GJ Project comprises the Donnelly property with resource estimates of 940 million lbs Cu, 1.56 million oz Au in the measured and indicated categories and 312.5 million lbs Cu, and 0.57 million oz Au in the inferred category. The Snip Mine with a one million ounce gold production record in the 1980s is believed to have undiscovered gold resources.

Ascot Resources Ltd. [AOT-TSXV] owns the former Premier gold mine and adjoining Dilworth optioned property

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**Selected Assay Results\* (Major Intervals)**

DDH	From (m)	To (m)	Length (m)	Cu (%)	Au (g/t)	Ag (g/t)	CuEq (%)
HAT-011	12	463.11	451.1	0.22	0.17	1.78	0.41
HAT-012	192	376.0	184.0	0.29	0.23	1.10	0.41
HAT-017	221	459.9	238.9	0.27	0.22	0.43	0.47
HAT-019	48.4	444.8	396.4	0.13	0.1	0.29	0.23
HAT-020	213.8	301.4	87.6	0.28	0.27	0.23	0.53
HAT-022	43.4	447.6	404.2	0.25	0.255	0.41	0.49
HAT-023	67.9	400.3	332.4	0.29	0.25	0.56	0.53

\*True with unknowns; Cu(g/t) based on Au@1350ppm, Ag@1975ppm, Cu@2.15%

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where indicated mineral resources at 0.3 g/t cut-off are 93,502,000 tonnes grading 0.82 g/t Au (2,475,000 oz) and 6.9 g/t Ag (20,783,000 oz) and inferred resources at 79,278,000 tonnes grading 0.59 g/t Au (1,494,000 oz) and 7.2 g/t Ag (18,248,000 oz). Drilling in progress in 2016 comprising 42,200 metres in 149 holes in the Premier Mine area continue to demonstrate good mineralization continuity, including one hole that intersected 3.05 metres grading 104.74 g/t Au and several other holes containing visible gold with assays pending.

**American Creek Resources Ltd.** [AMK-TSXV] owns the Electrum property 45 km north of Stewart and the Treaty Creek property adjacent to Seabridge Gold's KSM Project and, in a series of stock and cash transactions, formed joint ventures with **Tudor Gold Corp.** [TUD-TSXV] and **Teuton Resources Corp.** [TUO-TSXV; TEUTF-OTC; TFE-FSE]. Electrum lies near past-producing mines Premier, Scotty and Granduc with identified high-grade

gold and silver vein systems and Treaty Creek has structures traceable to KSM and Pretium's Brucejack Project. In June, the American Creek/Tudor JV began a drill program at Electrum. American Creek owns 100% of the Silvershot prospect near the past-producing Portland Canal Mine and nearby several historic mines that hosted high-grade lead/silver deposits. The Portland Mine operated briefly between 1911 and 1912 producing 8,164 tonnes of ore averaging 2.33 g/t Au, 98.55 g/t Ag and 1.56% Pb. Drilling in 1973 defined a resource of similar tonnage of Au, Ag, Pb and Zn.

**Millrock Resources Inc.** [MRO-TSXV; MLRKF-OTCQX] has acquired a 100% interest in the Willoughby high-grade gold prospect 27 km east of Stewart where previous drilling returned 20.5 metres of 25.0 g/t gold and 184.2 g/t silver. The 995-hectare claim block is 3 km east of IDM's Red Mountain Project and 8 km south of Millrock's Poly (and Todd) property and

the LNT property, which Millrock has an option to purchase from Teuton.

**Garibaldi Resources Corp.** [GGI-TSXV; RQM-FSE] is conducting a work program at the nearly 100 km<sup>2</sup> Palm Springs project contiguous to Colorado's KSP property that includes soil and rock sampling. XRF assay technology is being used to detect pathfinder minerals. Garibaldi can earn up to a 90% interest from Decoors Mining Corp. Sampling by Noranda returned 84 g/t gold and 8% copper. With its Palm Springs Project, the E&L nickel-copper-gold deposit, and the King North and King South properties, Garibaldi controls more than 150 km<sup>2</sup> in this core part of the Golden Triangle. King North is already permitted for drilling.

**Aben Resources Ltd.** [ABN-TSXV] newest gold project is the 23,000-hectare Forrest Kerr Project in the Golden Triangle. This consolidated land package is along the Forrest Kerr Fault in a region hosting many significant mineral deposits.

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Other claim holders in the Triangle include Barrick Gold Corp. [ABX-TSX, NYSE], Auramex Resource Corp. [AUX-TSXV], Eskay Mining Corp. [ESK-TSXV], Metallis Resources Inc. [MTS-TSXV] and Romios Resources Inc. [RG-TSXV].

Northwest of the Golden Triangle is the Sheslay Valley where several companies have been exploring. Doubleview Capital Corp. [DBV-TSXV; DBLVF-OTCBB] plans to resume drilling its gold-copper porphyry Hat Project 95 km southwest of Dease Lake. Ashburton Ventures Inc. [ABR-TSXV; ASHXF-OTC; ARB-FSE] holds the Hackett Project adjoining the Doubleview ground.


Garibaldi Resources Corp. has been exploring the Grizzly West property which has a well-defined copper-gold porphyry target, one of a number of prospective areas it controls. Teck Resources Ltd. [TCK.B-TSX; TCK-NYSE] also holds a large land position in the Sheslay Valley.

Dolly Varden Silver Corp. [DV-TSXV; DOLLF-OTC] has new management, a new share structure and revised loans to kick-start the company. The 100%-owned land position in the Upper Kitsault Valley has four past-producing silver deposits where almost 32 million oz silver is indicated.

Also outside the Triangle, Brixton Metals Corp. [BBB-TSXV; BXTMF-OTC] has completed a Phase I soil-rock geochemical program on its Thorn property 120 km northwest of Telegraph Creek. A total of 981 soil and 159 rock samples were collected and submitted for analysis. The majority of samples were collected within in new area of the property which has not seen any previous exploration called the Chivas Zone. Secondary areas sampled were the Outlaw Zone, Aberlour Zone and Amarillo Creek, where follow-up sampling was conducted on encouraging gold results. Based on the results, further exploration may be conducted later this year. ■

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# Québec exploration recovering after four-year downturn

by Simon Rees

Québec is blessed with a broad range of metals and minerals and is probably best noted for its gold and iron ore, with noteworthy base and speciality metals operations too. The three main mining zones comprise Nord-du-Québec, Côte-Nord and Abitibi-Témiscamingue, which received almost 96% of total mining investment in 2014.

The province is consistently viewed as one North America's finest for mining, a position that appeared to be eroded a few years ago on worries about legislative changes that coincided with the down cycle's economic headwinds. There was also disappointment that the Plan Nord strategy, unveiled in 2011 to open up northern Québec and tap its latent minerals, was replaced with a watered-down "The North for All" plan by the previous Pauline Marois administration.

The current government headed by

Philippe Couillard steadied the ship after winning power in 2014 and reinvigorated Plan Nord, seeking public and private investments that total \$50 billion by 2035, with at least \$2.5 billion coming from the public purse. "There has been less change than predicted," Bennett Jones mining specialist and lawyer Sander Grieve told *Resource World* when considering political and legislative developments. "Some of the parallel changes have been encouraging, while the re-announcement of Plan Nord was quite meaningful."

Still, the fiscal burden of the down cycle has been tough to say the least. Total mining investment in Québec stood at \$5.13 billion in 2012, sliding to a preliminary figure of \$2.3 billion in 2015, according to the Institut de la statistique du Québec (ISQ). Mineral shipment values stood at \$8.48 billion in 2014, falling to a preliminary figure of \$7.44 billion for 2015, with

\$6.97 billion estimated for 2016.

Retrenched production in Québec's part of the Labrador Trough weighs heavily here, stultified by weak iron ore prices. Arcelormittal recently announced it would not advance an expansion plan for its Mont-Wright operation. More eye-catching was Champion Iron's acquisition of the Bloom Lake Mine via a subsidiary for \$10.5 million from Cliffs at year-end 2015. Cliffs had acquired the mine for \$4.9 billion at the market top in 2011.

But Grieve noted those entering the Trough cheaply were buying into a possible opportunity with the added benefit of having the necessary infrastructure in place. "It's one of those classic Warren Buffet-style strategies where you go in the other direction," he said. "But it needs courage and patience, which are tough things to combine. However, if it's a cycle and it does return, then the guys with

The advertisement features a banner with a sunset background. On the left, a teal arrow-shaped box contains the text: "BUILT WITH PASSION INTEGRITY TEAMWORK RESPECT". In the center, the text "BUILT FOR PROSPERITY" is displayed in large white letters. On the right, the Stornoway logo is shown. Below the banner is a photograph of a large industrial facility, likely a diamond processing plant, with several large white storage tanks and buildings. The website "WWW.STORNOWAYDIAMONDS.COM" is visible in the bottom left corner, and the stock exchange code "TSX: SWY" is in the bottom right corner.



courage will get paid.”

Courage has also been a prerequisite in Québec’s exploration. Total investment in deposit appraisal plunged from \$833.9 million in 2011 to a preliminary figure of \$220.1 million for 2015, with precious metals comprising just over \$108 million of that figure. ISQ estimates exploration expenditures will dip to \$218.6 million for 2016, although the total number of metres drilled is set to rise from almost 1.40 million preliminary 2015 to 1.43 million metres estimated for 2016.

More recently there have been occasional bright spots and hints of upturn for some metals and minerals. Gold leads the way, with shipments rising from 41.4 tonnes in 2014 to a preliminary figure of 49.7 tonnes in 2015, the values rising from \$1.86 billion to \$2.37 billion. ISQ estimates 49.5 tonnes for 2016 at a value of \$2.36 billion. However, there has been a spring in the yellow metal’s step recently, with a solid Q1 performance and safe-haven buying spurred by the “Brexit bounce” that took gold well past the US \$1,300/oz level. It will be interesting to see what the final value for 2016 will be on this.

Mergers and acquisition activity has also picking up and Grieve noted that fresh money was entering the jurisdiction in a more meaningful way. “I think we’re seeing green shoots with some renewed

Building Stornoway Diamond’s Renard diamond mine located 350 km north of Chibougamau in the James Bat region of northern Quebec. Processing of ore began in mid-July, ahead of schedule. Photo courtesy Stornoway Diamond Corp.

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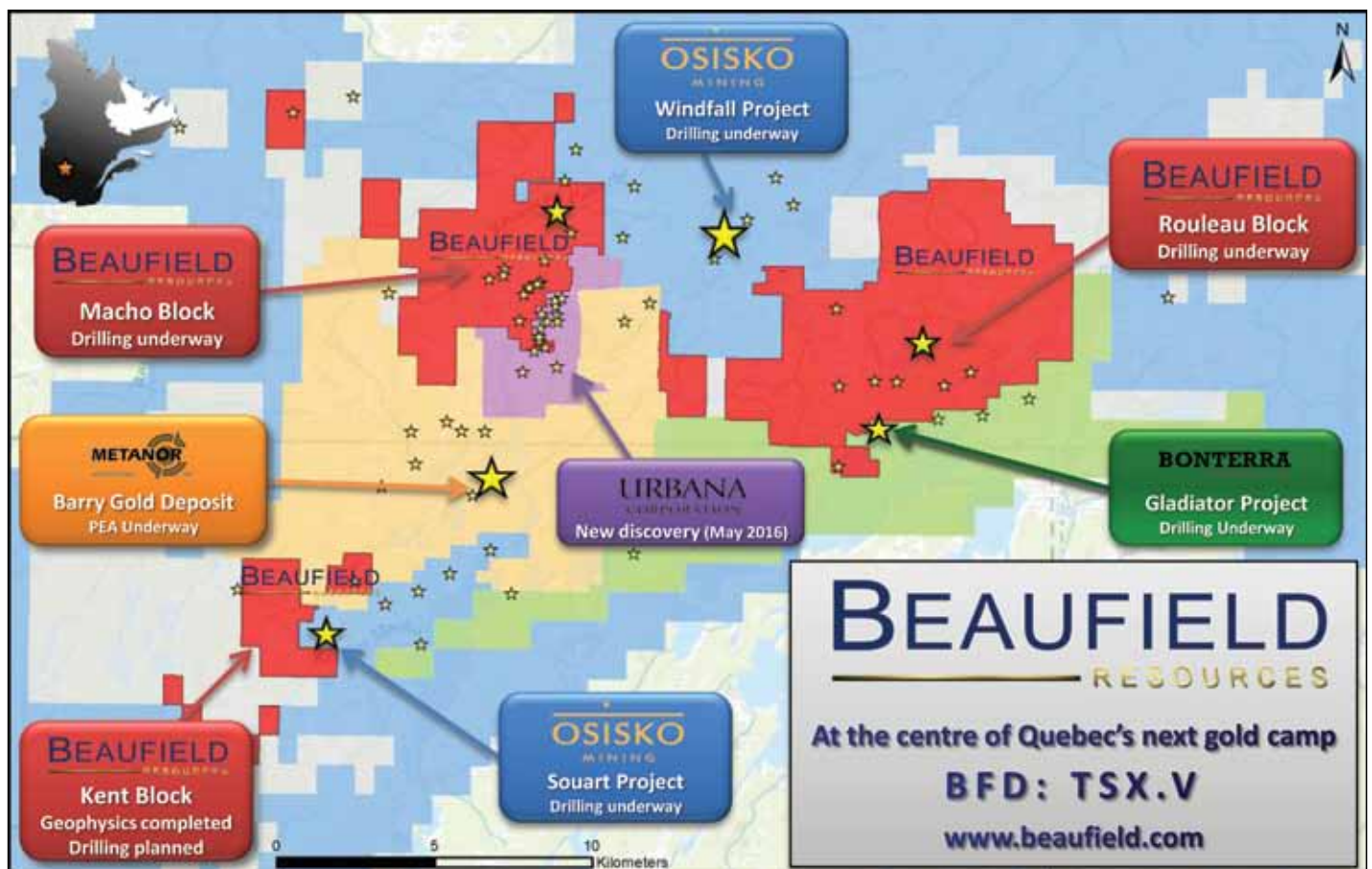
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Winter diamond drilling in northern Quebec. Photo courtesy Beaufield Resources Inc.

enthusiasm, certainly in the gold space," he said. "I've been looking back over stock prices and at a number of juniors and they've doubled over the past year and some are now triple from what they were at the bottom. Momentum is now building."

Of the operations being brought on stream in Canada this year, perhaps Stornoway's Renard diamond mine is one of the most notable. It was on the cusp of entering production at the time of writing and the company was keen to stress the advantages of operating in the province. "We've really embraced Québec; it's been a very important part of our story," CEO and president of Stornoway Mining Matt Manson told *Resource World*. "Québec is a terrific mining jurisdiction." ■





## Osisko Mining expands Windfall Lake gold deposit

Osisko Mining Inc. [OSK-TSX] changed its name from Oban Mining Corp. on June 14. The new name recalls that of Osisko Mining Corp., the company that brought the Malartic gold mine to fruition and to which several members of management belonged. Osisko Mining Corp. was acquired by Agnico Eagle Mines Ltd. and Yamana Gold Inc. in 2014; the companies now run the mine as a joint venture.

On June 27, Osisko announced a \$25 million bought deal flow-through equity financing, gross proceeds from which will be invested in its Québec and Ontario projects. The company's flagship is the 100%-owned Windfall Lake gold project, located between Val-d'Or and Chibougamau, Québec and within the Urban Barry Greenstone Belt. It is currently undergoing a 55,000-metre drill campaign.

The efforts combine definition drilling above the Red Dog intrusion, with expansion drilling above and below. Initial results have been positive, with highlights including an intersect from hole OBM-16-656 that comprised 9.04 g/t from 255.2-261 m and 30.6 g/t from 273.30-276.40 m. Hole OBM-16-664 included 4.64 g/t gold from 439.30-449.50 m.

On June 3, Osisko reported the discovery of new mineralization around 3 km west-southwest of the main Windfall deposit. The feature was defined by two drill holes separated by roughly 700 m and included hole OBM-16-652, which intersected 12.72 g/t gold from 208.70-210.20 m. The company noted the results underpin potential for further delineation work.

Mineral resources are just over 2.76 million tonnes at 8.42 g/t gold for 748,000 indicated ounces and 3.51 million tonnes at 7.62 g/t gold for 860,000 ounces inferred. The company claims Windfall is one the highest-grade resource-stage gold projects in Canada, the bulk of the mineralization occur-


ring in the Main Zone. The deposit is well defined from surface to a depth of 500 m and remaining open along strike and at depth.

The company also holds the Marban Block about 15 km west of Val-d'Or. On June 13, it announced a new mineral resource estimate for the Marban property, which comprises the Marban and Norlartic deposits. At a cut-off grade of 0.4 g/t gold, measured and indicated (M&I) resources for both deposits stood at just over 1.12 million oz. for 1.23 g/t gold. At a cut-off of 1 g/t, M&I resources comprise 771,000 oz. at 1.99 g/t gold.

The news came after Osisko announced the start of a 5,000-metre drill campaign on May 10 that will include seven holes on its Heva property and 15 holes on its Malartic property. In addition, drilling will occur between the Marban and Norlartic deposits to verify the Stellar Zone's continuity. The company also announced, on July 6, that it had started exploratory work at its wholly-owned Souart property 15 km south of Windfall. ■

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Stornoway Diamond Corp. [SWY-TSX] is about to bring on stream its 100%-owned Renard diamond mine located in the James Bay region, north-central Québec. Pre-operational verification at Renard has been completed and all principal plant equipment and control systems had been installed and tested, with handovers from construction to operations staff.

Completion costs are estimated at \$775 million, which compares with \$811 million initially planned. Stornoway had re-baselined completion estimates in February because the build rate was surpassing expectations, President and CEO, Matt Manson, told *Resource World*, adding the handover announced on June 22 was eight weeks ahead of the new schedule. "We've been firing on all cylinders," he said. "We expect to have ore in the plant shortly."

The absence of other mine construction elsewhere in eastern Canada has worked to Stornoway's advantage, enabling it to have full call on specialists and A-team construction personnel, and to obtain supplies and services at competitive prices without long lead times. "For example, there was an 18-month lead time for Caterpillar mining equipment when we did our initial feasibility study for the project in 2011," Manson said. "That lead time is now matter of a few weeks."

Full year (FY) production for 2016 is predicted at 220,000 carats with ramp up and full commercial production to be reached by end-December. Output for FY 2017 is estimated at 1.71 million carats, with sales at 1.36 million carats. The annual processing rate is expected to stand between 2.2 million and 2.5 million tonnes by 2018.

Renard has 22.3 million reserve carats effective March 30, while the life-of-mine is estimated at 14 years. Gross revenue is estimated at \$5.57 billion and net revenue at \$4.55 billion. The mine plan envisages a combined open pit and underground operation, with both output and revenues peaking between 2023 and 2026.

The company has a market capitalization of \$756 million effective June 14. Fully diluted share ownership comprises 50.2% project finance sponsors, 38.5% institutional investors and 11.3 retail and insiders. The balance sheet effective June 14 stood at \$219 million, with total debt at \$255 million, while undrawn financing commitments were \$109 million, excluding a \$48 million cost overrun facility.

The company strives to hire locally, with a notable First Nation composition. Investissement Québec, the provincial government's sovereign wealth fund, is a 28% shareholder in Stornoway and an important lender. "It's been nothing but a positive relationship for us," Manson said.

Stornoway also maintains an exploration team, with recent drilling conducted at its wholly-owned Adamantin diamond project 100 km south of Renard. The project has 11 distinct kimberlite bodies identified so far, with intersections of up to 13.7 m of undiluted kimberlite reported. Stornoway noted that 18 out of 78 holes returned kimberlite on 72 geophysical targets on May 5.

"We think there's more to be found and it's exciting, although it's still early days and we don't have any diamond data back yet on these bodies," Manson said. "Diamond exploration can be a tough game but we want be really good explorers, developers and operators of diamond projects. That's the future of the company." ■

**HPQ SILICON RESOURCES PLANS SILICON MINING/METAL PRODUCTION**

HPQ Silicon Resources [HPQ-TSXV] (formerly Uragold Bay Resources) is seeking to become a producer of high-purity quartz grading over 99% SiO<sub>2</sub> from its Roncevaux property in the Matapedia Valley of Québec's Gaspé region. Ultimately, it also wants to become a vertically-integrated producer of silicon metal at 98.5% Si; high-purity silicon metal at 99.99% Si; solar-grade silicon metal at 99.9999% Si; and/or a producer at 99.999999% Si.

Quartz from the projects Malvina and Roncevaux has already passed the testing protocols of "a major silicon metal producer," which confirmed HPQ Silicon's material was suited to their production parameters.

The company is partnered with PyroGenesis Canada Inc. [PYR TSXV], with exclusive worldwide rights to use PyroGenesis' proprietary Purevap Quartz Vaporization Reactor (QVR) technology. This is an alternative to the Siemens

method of producing high-purity silicon but has a lower capital cost, operating cost and a lower carbon footprint.

On April 19 it announced early test results of Purevap QVR had demonstrated its ability to transform high-purity quartz into silicon metal. It also noted the validation program was in its second stage, whereby the reactor's operational parameters would be adjusted to transform HPQ Silicon quartz into solar-grade purity silicon.

Further progress was reported on June 29, with the first batch of samples produced by Purevap QVR utilizing quartz from the Martinville property assessed by the INRS-ETE laboratories in Québec City. HPQ Silicon reported 22 different readings of 100% Si had been observed, the figure recorded as such because the impurities levels were too low for INRS-ETE's detection methodologies.

The company noted this first-pass work confirmed Purevap's ability to create high purity silicon metal that exceeds 99.9+% Si. The samples have been sent to a specialized laboratory in the US to determine the

silicon metal's precise purity levels.

"These test results represent a significant milestone as one of the key goals of our project has been reached – the establishment of a high purity silicon (99.9%+) baseline for the material produced by the reactor," HPQ Silicon Chairman and CEO, Bernard Tourillon, said. "Reaching our goal of transforming HPQ Silicon quartz into solar-grade purity silicon seems even more attainable."

The company's development program will now move beyond metallurgical testing into a research and development phase that is focused on improving the Purevap QVR beneficiation capability. The primary objective is to determine maximum purity and advance to a pilot plant stage.

Concurrently, HPQ Silicon is seeking to spin out its Beauce gold project located in the municipality of Saint-Simon-les-Mines in the Beauce region, southern Québec. The project comprises 6 km-long unconsolidated gold-bearing sedimentary units and holds the largest placer gold deposit in eastern North America, according to the company. ■



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<b>Abcourt Mines Inc.</b>	ABI-TSXV; AML-Berlin, FSE	Elder gold mine, Rouyn-Noranda
<b>Abitibi Royalties Inc.</b>	RZZ-TSXV	royalty company
<b>Agnico-Eagle Mines Ltd.</b>	AEM-TSX, NYSE	LaRonde, Goldex, Lapa gold mines
<b>Alexandria Minerals Corp.</b>	AZX-TSXV; ALXDF-OTC; A9D-FSE	Cadillac Break – gold
<b>Aurvista Gold Corp.</b>	AVA-TSXV; AV2-FSE	Douay Gold Project, Matagami region
<b>Azimut Exploration Inc.</b>	AZM-TSXV	Eleonore South JV with Eastmain – gold
<b>Balmoral Resources Ltd.</b>	BAR-TSX	Martiniere gold; Grasset Ni, Cu, PGE
<b>Beaufield Resources Inc.</b>	BFD-TSXV	Urban gold-silver project
<b>BonTerra Resources Inc.</b>	BTR-TSXV	Gladiator gold project
<b>Chibougamau Independent Mines Inc.</b>	CBG-TSXV; CLL-Stuttgart	Abitibi region – gold
<b>Eastmain Resources Inc.</b>	ER-TSX	Eau Claire, Eastmain Mine & Eleonore South JV- gold
<b>Evolving Gold Corp.</b>	EVG-CSE; EVOGD-OTC; EV7-FSE	Lithium Lakes Project
<b>Fieldex Exploration Inc.</b>	FLX-TSXV; F7E-FSE	Rare Earths; Cu-Ni; PGE; ind. minerals
<b>Falco Resources Ltd.</b>	FPC-TSXV	Horne Mine Complex – gold, Rouyn-Noranda
<b>Genius Properties Ltd.</b>	GNI-CSE	numerous properties – various metals
<b>Geomega Resources Inc.</b>	GMA-TSXV; GOMRF-OTC	Montveil – rare earths
<b>Globex Mining Enterprises Inc.</b>	GMX-TSX; G1M-FSE	Carpentier Township
<b>Goldcorp Inc.</b>	G-TSX; GG-NYSE	Éléonore gold mine, James Bay region
<b>Golden Hope Mines Ltd.</b>	GNH-TSXV; GOLHF-OTC	Bellechasse-Timmins Project – gold
<b>Golden Valley Mines Ltd.</b>	GZZ-TSXV	Oregon Gold Project, Val d’Or
<b>Hecla Mining Company</b>	HL-NYSE	Casa Berardi gold mine
<b>IAMGold Corp.</b>	IMG-TSX; IAG-NYSE	Westwood gold mine; Monster Lake J/V project
<b>Integra Gold Corp.</b>	ICG-TSXV; ICGQF-OTCQX	Lamaque South Project & various – gold
<b>MDN Inc.</b>	MDN-TSXV	Argor Lithium Project – James Bay Lowlands
<b>Metanor Resources Inc.</b>	MTO-TSXV	Bachelor gold mine
<b>Midland Exploration Inc.</b>	MD-TSXV	Various – gold, rare earths
<b>Monarques Gold Corp.</b>	MQR-TSXV; MRQR-FSE	Val d’Or – gold
<b>Northern Superior Resources Inc.</b>	SUP-TSXV	Two gold projects, Chibougamau region
<b>Osisko Mining Inc.</b>	OSK-TSX	Windfall Lake gold project
<b>Osisko Gold Royalties Ltd.</b>	OR-TSX	royalty company
<b>Radisson Mining Resources Inc.</b>	RDS-TSXV	O’Brien gold project
<b>Richmont Mines Inc.</b>	RIC-TSX, NYSE MKT	Beaufor gold mine
<b>Sirios Resources Inc.</b>	SOI-TSXV; SIREF-OTC	Cheechoo gold project
<b>TomaGold Corp.</b>	LOT-TSXV	Monster Lake J/V gold project
<b>Typhoon Exploration Inc.</b>	TYP-TSXV	Monexco gold project
<b>Visible Gold Mines Inc.</b>	VGD-TSXV; 3V4-FSE, Berlin	167 Project – gold

## Sirios Resources intersects high-grade gold at Cheechoo

Sirios Resources Inc. [SOI-TSXV] is focused on the James Bay region of northern Québec, with several projects that include Aquilon, Pontax and its flagship Cheechoo gold project, which comprises 145 claims and is adjacent to Goldcorp's Éléonore gold mine in Eeyou Istchee. It is located around 320 km north of Matagami, with Sirios' first discovery work at Cheechoo starting in 2010 and first drilling in 2012.

The company held 45% of the property, with Golden Valley Mines Ltd. [GSS-TXSV] having the remaining 55%. But on May 11 Sirios announced it would issue 1,250,000 common shares to Golden Valley at a price of \$0.40 per share for a total value of \$500,000. That sum represents the last obligation Sirios needs to fulfil in order to acquire 100% ownership of Cheechoo, with the company having also completed

necessary fieldwork agreed under a 2012 agreement.

Sirios has delineated a large, low-grade – between 0.3 g/t and 0.8 g/t gold – mineralized envelope at Cheechoo. This extends for more than 1 km in strike length at a width of 300-450 m wide and down to more than 340 m in depth. Recent drilling at the project this year has delivered encouraging results, with the latest batch of assay returns released on June 8.

Highlights included hole CH-16-35, which intersected 37.2 g/t gold from 75.4-79.5 m; CH-16-35-41, which achieved 31.8 g/t gold from 137-143 m; and hole CH-16-53 that returned 13 g/t gold from 27.5-30.2 m and included 29.1 g/t gold from 29-30.2 m. The news follows the March 29 announcement of hole CH-16-52's returns, which included 8.22 g/t gold from 120-140.3 m and 30.53 g/t gold from 133.2-137.6 m.

Sirios president, Dominique Doucet, noted the results would allow the company to demonstrate further continuities

of gold. They would also assist Sirios with focusing on priority targets with promise, such as zone "52" – in which CH-16-52 was drilled – or the new north-west sector, where holes #47 and #48 were drilled more than 1.5 km from the main sector.

The company announced completion of two non-brokered private placements on April 22 for aggregate gross proceeds of \$5.5 million. This comprised \$3.5 million raised by issuing 17.5 million units at \$0.20 per unit and \$2 million raised by issuing 6,666,667 flow-through shares at \$0.30.

Goldcorp Inc. [G-TSX; GG-NYSE] exercised its right to acquire up to 19.9% of Sirios' share capital on a partially diluted basis by acquiring 6,745,220 units for almost \$1.35 million. "We are very pleased to have solid support from numerous corporate investors and our current institutional and corporate shareholders, who subscribed for almost 80% of today's placements," Doucet said at that time. The funds accrued will be invested in further delineation work at Cheechoo. ■

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## Marathon Gold: building gold resources toward a PEA

**M**ining on the island of Newfoundland has always played an important part in the province's economy, from small scale mining efforts as far back as the 1770s, to one of the world's leading copper exporters in the 1860s and notably, to the Bell Island Iron Ore Mine, the longest continually operating mine in Canada that shut down in 1966. The old saying, "every day a mine is worked is a day closer to shut down" holds true for Newfoundland's diverse mining projects where over the years, more than 15 mineral commodities have been produced or mined from several different projects that have come and gone.

Today, Newfoundland is a globally-significant producer of iron ore, nickel, copper, cobalt and gold from five large scale mines and is ranked the eighth best jurisdiction in the world to invest in exploration and mining projects by the Fraser Institute. Other mines and quarries on the island produce a variety of metals and mineral products including limestone, dolomite, granite and slate. Mining and exploration companies directly provide high-paying jobs to more than 7,000 men and woman throughout the province of Newfoundland and Labrador.

Newfoundland also hosts a vigorous mineral exploration sector, where the government has recently made many strategic investments to enable and encourage exploration. One company which has ben-

efitted from that government investment is Toronto-based **Marathon Gold Corp.** [MOZ-TSX] which has been receiving approximately \$100,000 per year in exploration grants from the Junior Exploration Assistance program and 75% of the costs of recent metallurgical tests from the Research and Development Council of Newfoundland and Labrador.

Marathon Gold is focused on their 100%-owned Valentine Gold Camp located 57 km south of the historic mining town of Buchans in the west-central area of the island of Newfoundland. The company is led by President and CEO, Phillip Walford, a geologist for the better part of 40 years. Walford is one of the founders of Marathon PGM that was sold in 2010 to Stillwater Mining for \$110 million. Sherry Dunsworth is the VP of exploration with over 30 years in the industry; she is also a director of the Mining Industry of Newfoundland and Labrador.

The Valentine Gold Camp hosts a large gold system that stretches along an 18-km structural corridor within the 24,000-hectare property. Only 10% of the gold trend has been assessed in any great detail with many targets yet to be drilled. The company's focus has been on four, near-surface deposits within the camp: Leprechaun, Marathon, Sprite and Victory. The four deposits are all open along strike and depth and share in the resource of 1,060,100



Phillip Walford, President and CEO of Marathon Gold, examines some diamond drill core at the Valentine Lake gold project on the Island of Newfoundland. Courtesy Marathon Gold Corp.

ounces of gold grading 2.20 g/t measured and indicated and 200,000 ounces of gold grading 2.85 g/t inferred. On-going exploration has resulted in the discovery of many new gold occurrences along the highly prospective Valentine Lake thrust fault and associated splay faults where the majority of the gold mineralization occurs.

The largest of the four deposits is the Leprechaun deposit that has both an open pit and underground resource. The



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open pit contains a measured resource of 247,000 ounces of gold grading 2.80 g/t, an indicated resource of 412,000 ounces of gold grading 2.07 g/t and an inferred resource of 100,000 ounces of gold at 1.82 g/t. Underground, the measured resource is 17,000 ounces of gold at 4.83 g/t, an indicated resource of 100,000 ounces of gold at 4.05 g/t and an inferred resource of 69,000 ounces gold at 6.13 g/t. The resource was estimated using a 0.5 g/t gold minimum cut-off for the open pit resources and a 2.0 g/t gold minimum cut-off for the underground resources.

The first assay results were recently released from the company's current 7,000-metre drill program. The focus has been on the 1.6-km mineralized trend between the Marathon and Sprite deposits which exhibit a number of geological characteristics that appear more conducive to open-pit mining methods (compared to Leprechaun). Results from the down-dip extension of hole MA-15-047 that was drilled last year at Marathon, include 7.2 metres grading 20.17 g/t gold from a

downhole depth of 285 metres, including 0.7 metres grading 12.54 g/t gold and 0.7 metres grading 190.88 g/t gold. The higher grades intersected at depth are encouraging and show the potential for higher grade, underground resources.

In April, the company announced positive initial metallurgical test results pointing to reduced capital and operating costs through a heap leaching process. Currently, flotation and leaching work is being conducted on samples from the Marathon deposit with similar results to the previously tested Leprechaun deposit that returned results of up to 96% gold recovery. Positive results from short column heap leach test-work have also been encouraging and results from both metallurgical tests will be incorporated into a Preliminary Economic Assessment (PEA) due out in the first half of next year. ■

*The above article was written by Barry Muir who is a registered Investment Adviser with Haywood Securities Inc. a Canadian based independent, full service investment firm and*

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## Sell in May – No Way!

A few months ago I wrote in this publication: One Step at a Time. I thought that if the resource stock heavy TSX Venture Exchange could hold most of the gains it had made in the first quarter of 2016 that there was a good chance that the new bull market for resources was upon us.

To recap, the Venture Exchange had risen about 20% from a record low of 474 set in January and I was looking for a confirmation that the gains would hold. This was because recent history had shown that the resource markets tend to go into a severe correction during the summer months – to the point that the saying of “Sell in May and go away” had become the norm. And those who sold were proven right as some of the summer corrections managed to negate a full year or more of gains.

So there we were in April with the Venture Exchange at about 575 and a nice gain in hand from the absolute low of January 28, but nervously wondering if the sell in May scenario was poised to play out again. I didn't think it would, but history had taught me not to stick my neck out too far.

And the Venture Exchange proved the naysayers wrong. Not only didn't it correct – it actually kept going up – smartly too. Up through 600 and on up through a significant one-year resistance level of 703. And except for a brief post-Brexit shudder that tested the recent 703 breakout, the Venture Exchange now stands at a 20-month high of about 784.

The advance seems to be fairly broad based. Gold and silver prices are at two-year highs. Crude oil and natural gas are well up off of their multi-year lows. Copper seems to be building a base above US \$2-a-pound and zinc has quietly gained about 35% this

year to almost US \$1 per pound.

Add to this the new enthusiasm for the electric auto induced interest in lithium and you have a resource market unlike anything we've seen for a number of years with multiple resources all moving in the same direction – up. And with daily Venture Exchange trading volumes having doubled in the past six months to about 200 million shares per day, one could safely say that this resource bull market has legs.

Granted, it is still summer and this market could still consolidate or correct, but I think the lows of the year are now well behind us. In fact, following perhaps a quieter summer and barring any world calamity, I'm expecting the TSX Venture Exchange to move up and test the 2014 upside resistance level of 1,050 sometime later this year or early into 2017. Sell in May and go away – not this year. To illustrate this point, *The Vancouver Sun* reported in early July that the top 10 performers on the S&P/TSX Composite Index to date in 2016 were mining companies.

This market looks to be going higher. ■

*Rodney Blake is an Investment Advisors with Canaccord Genuity Wealth Management, a division of Canaccord Genuity Corp, Member-Canadian Investor Protection Fund. The information contained in this article is drawn from sources believed to be reliable, but the accuracy and completeness of the information is not guaranteed, nor in providing it does Rodney Blake, Canaccord Genuity Corp, or its subsidiaries, or affiliated companies, assume any liability. This information is current as of the date appearing in this article, we do not assume any obligation to update the information or advise on further developments relating to these securities. This article should not be considered personal investment advice or a solicitation to buy or sell securities. Canaccord Genuity and holdings of its respective directors, officers and employees and their associations, from time to time may buy or sell any securities mentioned herein. The views expressed are those of the author and not necessarily those of Canaccord Genuity Corp. He can be reached at 604-643-7567 or rod.blake@canaccord.com*

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## Are China and Russia heading toward a gold standard?

Something obviously has lit a fire under both the price of gold as well as valuations on associated share investments since the beginning of the year through mid-July 2016. During that time, gold has soared by more than \$300 per ounce to near US \$1,370/oz while important mining share indexes have risen by as much as 200%! While there may indeed be several factors which could account for these performances, many observers are beginning to hold the belief that it is the gold market actions of two vitally important countries, China and Russia, which could be of particular significance.

The primary facts are simple to state. According to a May 2016 study authored by Russia's Pravda news agency, "...central banks of Russia and China have been buying a lot of gold lately. During the past fifteen months, China has increased its gold reserves by 70% to 1,700 tonnes, ranking sixth in the world in gold reserves. Russia's gold reserves have grown by 21% to 1,460 tonnes...In the summer of 2015 the country [China] doubled its appetite for the precious metal...Russia started buying gold in 2015, increasing purchases against the backdrop of falling oil prices."

One might ask why China and Russia, two countries with Marxist-Communist backgrounds, would now be turning to gold. The answer could lie in the fact that both nations have moved toward much more pragmatic economic policies in recent decades and, from that point of view, there may indeed be serious concerns which could justify accumulating growing reserves of gold.

As Nobel-winning economist, Milton Friedman, pointed out in his best-selling text, *Free to Choose*, there has been a pronounced trend toward massive government over the past half-century, away from prior free market philosophies toward Fabian socialism and New Deal liberalism

in Britain and the US. He informs us that rapidly growing deficits and debt have developed due to the resultant expansion of government programs, thereby creating increasing levels of deficits and debt. He goes on to explain that at first, governments attempted to finance these deficiencies via inflation, but that became politically unpalatable.

During recent years, I would note that central banks have taken to direct purchase of government debt via fiat money creation in the US, Britain, the European Union and Japan.

Former Federal Reserve Chairman, Alan Greenspan, recently entered the discussion during a lengthy interview with the Bloomberg News Service, taking the position that the ongoing growth of debt was unsupportable. In fact, the US Congressional Budget Office just issued a study which stated that, "...If current laws generally remain unchanged, the deficit would grow over the next ten years, and by 2026 it would be considerably larger [in relation to the size of the economy] than its average over the past 50 years." Greenspan openly declared that such debt growth was unsupportable over time and, perhaps surprisingly, he stated strongly that the true remedy rested in the restoration of a pure gold standard such as existed up until 1913 in America.

It would seem that Russia and China are amenable to such arguments.

In Russia, the government has become so concerned about adding to its gold reserve that it is not only buying up all of Russia's domestic gold production, but is also importing gold from outside sources. In the Pravda article noted above, that publication tells us that, "...Clearly Russia puts great strategic importance on its gold reserves. Both President Putin and Prime Minister Medvedev have been photographed on numerous occasions holding

gold bars and coins as a display of economic stability and strength..."

China has been equally aggressive, or perhaps even more so, in terms of adding to its gold holdings. A recent article in the respected *Forbes Magazine* noted that, "China's central bank...continues to purchase the precious metal on a monthly basis." *Forbes* also tells us that China's gold reserves are now approaching 60,000,000 ounces and this growth in China's gold holdings is taking place at the same time China is reducing its foreign currency reserves.

Two other items of recent interest also would appear to point toward continued growth in Chinese gold activity. In one case, they just announced that for the first time ever, they would begin to officially quote the relative price of their Chinese Yuan in terms of its value in gold. In the second case, China's biggest bank just bought a controlling stake in Britain's ICBC Standard Bank PLC whose property holdings include one of Europe's largest vaults.

If China is to bring its gold reserves up to the level of countries such as the US, Germany, and France, that would suggest sizeable gold purchases for some time to come. If that proves true, it would appear to suggest further precious metals strength ahead.

Another question that comes to mind is: Are China and Russia taking steps to establish a gold standard by which the value of their currencies will be defined in terms of gold? ■

*This material is taken from sources believed to be reliable and is provided for information only. Any investment decision should be made only after prior consultation with investment professionals. Leonard Melman is a financial and political writer who focuses on issues relating to the resource sector. Mr. Melman lives in Nanoose Bay, British Columbia, Canada and can be reached at [lmelman@shaw.ca](mailto:lmelman@shaw.ca)*



# Winston Gold Mining envisions small high-grade operation

## COMPANY AIMS TO RE-OPEN OLD GOLD MINE

In the current market environment where money for exploration is difficult to raise, the quest for quick cash flow has become the holy-grail for a number of junior companies.

The idea is simple enough; raise a small amount of capital, enough to start a small mining operation and generate cash flow to help grow the company while minimizing excessive shareholder dilution.

Unfortunately, executing this kind of plan is often easier said than done. At the very least you need a capable development team with a promising project in a mining friendly jurisdiction.

I believe **Winston Gold Mining Corp.** [WGC-CSE] is a company that has these qualities. Winston's development team is led by Mike Gunsinger, Director of Operations, a very experienced high-grade underground miner who has advanced numerous projects into production.

The company is a relatively new listing that was formed with the goal of quickly exploiting a known, high-grade, gold vein system, located just 37 km southeast of Helena, Montana. The project, known as the Winston District Gold Project, is easily accessible by paved highway and is close to infrastructure.

This leased property has historically produced over 100,000 ounces of gold from 150,000 tons of mined material – that works out to an average historic grade of 0.66 oz/ton or 22.6 grams/tonne. Most of this production came from the Custer Vein system, which was only mined to the water table. No modern drilling has been performed on this vein system and there is no evidence that mineralization does not

continue to depth.

Between 1984 and 1996, previous operators drilled over 630 holes (worth over US \$12 million in exploration) with the goal of trying to outline a near surface deposit amenable to open pit mining. Only a small low-grade resource was outlined and the project was dropped. Winston's geologic team took this data and identified a number of high-grade vein structures that splayed off of the main Custer Vein system. These high-grade veins are known as the Edna Trend.

Winston plans to drill 5,500 feet of core into the Edna Trend to verify and extend the zone to the west. In addition, the company plans on drilling an additional 3,330 feet to test mineralization below the old workings of the Custer Vein.

The company's mantra is "Drill for Structure, Mine for Gold." Taking that approach, Winston intends to waste no time opening up an old mining adit and driving towards the Edna Vein trend. Even though Montana has a ban on surface cyanide heap leach operations, the state is very progressive towards small underground mining operations. Winston's operation will comply with Montana's small miner's laws and the company's management has built a good working relationship with the Department of Environmental Quality (DEQ). As a result, permitting a small mining operation should not be a long drawn-out process.

I like this company because they have an experienced team with a no-nonsense cost-effective approach to mining. However, there are still a lot of associated risks. There is no Preliminary Economic Assessment or

NI-43-101 compliant resource estimates on the property. As a result, investors have no third party confirmation of the size or grade of mineralization or whether or not it can be economically exploited.

The company still needs to complete some confirmation drilling but based on historic results, I believe there is a good chance that they will confirm and extend the high-grade vein systems on the property. This should provide the company enough confidence to start small-scale mining operations. ■

*Stew Vorberg is an Investment Advisor with Mackie Research Capital Corporation (MRCC). This article was prepared, in part, under contract by Thomas Schuster. The opinions, estimates and projections herein are those of the author and may not reflect that of MRCC. The information and opinions contained herein have been compiled and derived from sources believed to be reliable, but no representation or warranty, expressed or implied, is made as to their accuracy or completeness. The issuer(s) mentioned in this article may not be suitable for all investors. Please consult an investment professional for advice regarding your particular circumstance. Neither the author nor MRCC accepts liability whatsoever for any loss arising from any use of this article or its contents. Information may be available to MRCC which is not reflected herein. This article is not to be construed as an offer to sell or a solicitation for an offer to buy any securities. The information contained in this article is not intended to constitute a research report. Stew Vorberg is a beneficial owner of the company highlighted in this article.*

# What investors should look for in a lithium company

by Ellsworth Dickson

Lithium exploration stocks have lately been on fire with the perception that the white metal will be in demand for electric cars and electronic device batteries. With the current lithium claim staking rush underway and more than 50 exploration companies seeking the world's lightest metal, resource stock investors may be interested in how to evaluate this specialized mining sector.

First, a primer. Basically, there are three types of lithium deposits: hardrock spodumene or lepidolite deposits; brine evaporite salt lake deposits; and lithium clay deposits (which have not yet proven economic). Obviously, a salt lake is a totally different geological environment from a hardrock deposit and calls for different exploration techniques, although a few are similar. Each type of deposit has its own exploration and development challenges; however, in the end, of course, the project must demonstrate economic viability.

Dr. Catherine Hickson, P.Geo, COO and International Exploration Manager for **Dajin Resources** [DJI-TSXV], explained to *Resource World*, "The exploration process differences are huge. Lithium accumulates in brines within closed basins under specific climatic and geological condi-

tions. Lithium can originate and build up from volcanic ash, geothermal sources or the bedrock that surrounds the basin. Groundwater carries the lithium into the basin where it evaporates and the lithium concentration increases."

She pointed out that this only happens in a few places around the world – the Nevada Hub, (Clayton Valley, Fish Lake Valley), Argentina, Chile and northwestern China. "Using standard evaporation pond technology, it is possible to process the brines cost effectively," she said. "To start the exploration process, you look for the right climate, closed basins and regions of known lithium concentrations."

Regarding the other two types of lithium deposits, hectorite is a lithium-rich clay that presents processing problems. True hardrock deposits contain the minerals spodumene or lepidolite in pegmatites that can be easily processed. Pegmatites are coarse-grained igneous intrusions found as dykes, lenses or veins. However, being rock, these deposits need a mill for crushing, grinding and so on which calls for higher capital costs than brine projects.

As an example of grade, **Nemaska Lithium's** [NMX-TSX] advanced hardrock Whabouchi Project in Quebec has 27.9 million tonnes with an average grade of 1.57% Li<sub>2</sub>O in the measured and indicated categories. Dajin's early stage Salinas Grande salt lake in Argentina features anomalously high lithium concentrations, up to 1,600 ppm, in near surface brines.

Various geophysical surveys are carried out for both brine and hardrock exploration. "Gravity surveys are used for brine (salar or playa) exploration as it indicates the depth of the basin and, hence, the potential size of a deposit," Hickson said.

"Seismic surveys are used to identify individual layers that help develop targets. Other electrical methods can register conductivity in the salt rich brines."

For hardrock exploration, aeromagnetic, gravity and ground magnetometer geophysical surveys are used. This is followed up with trenching and channel sampling of spodumene mineralization in the pegmatite host rock. Drilling brine salars can be done with a rotary drilling rig that creates chips. Typically, diamond drilling is used for hardrock exploration, a more expensive technique. "The geological exploration challenges are completely different between brines and hardrock," she said. "For brine deposits, explorers need to know if the lithium-rich layers extend throughout the basin or not."

On permitting, Hickson said that it doesn't matter whether it's a brine or hardrock deposit, permitting is totally dependent on the jurisdiction. Then there are different kinds of permits – exploration, drilling, building, water, etc.

So what should resource stock investors look for when considering lithium stocks?

"I think investors should look for experience in lithium exploration, whether hardrock or brine," said Hickson. "For example, an investor could look for a good brine project that has a large footprint in the right area. Our Teels Marsh brine project covers an entire salar."

Brian Findlay, President of Dajin Resources, added, "Investors should look at the stock price, the management team behind it and potential for upside appreciation. Watch out for lithium juniors whose share price has gotten ahead of exploration results. See what work has been done and what the company actually delineated." ■



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# Golden Predator's high-grade gold 3 Aces Project

by Ellsworth Dickson

**Golden Predator Mining Corp.** [GPY-TSXVN TGSF-OTC] has seen a dramatically rising share price with the company focusing most of its efforts on the 100%-owned 3 Aces gold property in southeast Yukon. The prospect features very high-grade native gold vein outcrops that have returned assays up to 4,820 grams gold/tonne.

In an interview, William Sheriff, Chairman, told *Resource World* that the rising share price is due to several factors. "Once we were above 10 cents, I think much of the increase was a result of our exploration results at 3 Aces and the participation of key investors plus retiring over 10 million shares."

Golden Predator extracted a 750-tonne bulk sample of high-grade material from the Sleeping Giant Zone at 3 Aces in winter 2016. Sampling began April 10, with 66.65 dry tonnes processed by June 3. A total of 3,442.8 grams (110.7 troy oz) of gold concentrate with an estimated gold content of 85.9% has been recovered from processing.

Sheriff said there are a couple of objectives for the bulk sampling program. "It all centres around trying to get a better understanding of the distribution and recovery of the high-grade gold in the veins," he said. "To avoid the 'nugget effect' of very high-grade or low-grade intersections skewing resource calculations, the bulk sample will address this problem. We also want to determine what metallurgical procedures are best to maximize gold recoveries."

Initial gold gravity recoveries from the bulk sample are running 80.81% to 92.79%. "We are recovering more gold than the program is costing us," noted Sheriff.

A small drilling program was completed at 3 Aces before the winter ice bridge was gone. "It was a bit ambitious to carry out a drill program in the Yukon in the winter but we did it and generated some confidence when we successfully demonstrated that we had multiple high-grade veins with some continuity and very good gold recovery," said Sheriff. "The results of our winter program along with the overall potential of the project brought in some important investors, including FCMI Parent Co, operated by Albert Friedberg, Power One's Pat DiCapo, McEwen Mining Ltd. and Eric Sprott. In addition, Tony Lesiak, Managing Director and Global Head of Mining Research for Canaccord Genuity, and Stefan Spears of McEwen Mining joined the board."

With summer here and the convenient ice bridge access to 3 Aces melted, the company has put in an application to build an all-weather bridge. Bridge parts have arrived and will be assembled following permit approvals. Meanwhile, the company has permits to cross the Little Hyland River at an easily crossable location.



A backhoe extracts gold-rich material from the Sleeping Giant Zone at the 3 Aces Project in the Yukon for the bulk sample. Photo courtesy Golden Predator Mining Corp.

Golden Predator has released assay results for the reverse circulation (RC) drill program at 3 Aces. Highlights include:

- 3A16-RC003 with 6.4 metres of 13.8 g/t gold from a depth of 22.55 metres, including 1.83 metres of 31.32 g/t gold;
- 3A16-RC007 with 2.28 metres of 96.78 g/t gold from a depth of 3.51 metres, including 0.76 metres of 272 g/t gold;
- 3A16-RC015 with 11.43 metres of 31.89 g/t gold from a depth of 12.8 metres, including 6.1 metres of 50.5 g/t gold;
- 3A16-RC025 with 10.36 metres of 14.3 g/t gold from a depth of 10.06 metres, including 0.76 metres of 53.1 g/t gold, 2.29 metres of 22.54 g/t gold and 0.46 metres of 42.9 g/t gold.

"Drill results continue to demonstrate impressive values along with an apparent thickening of mineralization with depth," said Janet Lee-Sheriff, CEO. "With each successive program, we continue to demonstrate continuity of mineralization and expand our working knowledge of the nature of the veins and mineralization at 3 Aces. We look forward to applying this knowledge to the systematic exploration of additional veins at the project, while continuing to expand the mineralization along the Sleeping Giant vein."

Golden Predator is planning another drill program but not until some other work is first started. William Sheriff said that there are many gold-rich areas at 3 Aces and with a recently announced financing the company will begin road building, trenching, detailed structural mapping, sampling and drilling.

At the 100%-owned Brewery Creek gold project, 55 km east of Dawson City, a heritage study is under way with the Tr'ondek Hwech'in in order to advance permitting to place the mine back into production. The Brewery Creek camp is also reopening with a PQ core drill program planned as the initial program. Refer to company website for details on the positive Brewery Creek PEA.

Golden Predator has about nine other projects; however, the main focus is on 3 Aces and Brewery Creek. ■

# A perfect storm for precious metals

by Thomas Schuster

Precious metals thrive in uncertainty and no one can argue that the times we live in aren't rife with social, political and economic anxiety.

Gold rallied 24% in the first half of 2016, more than any other year since 1974. Traders are now speculating on a US interest rate cut instead of a rate hike in September. This will have the effect of pushing Treasury yields lower and boosting the appeal of gold. Add to that a US campaign and election that promises to be as volatile as the recent Brexit vote.

Economic pundits believe that the recent Brexit vote has created social and economic aftershocks that promise to cascade across the globe for years to come. From an economic stand-point, no one is sure what will happen to the UK or the European Union going forward. All the Brexit vote managed to accomplish is to create more uncertainty.

In addition, the negative interest rate policies implemented by central banks in Japan and Europe represent a shift to 'unconventional policies' which creates further trepidation.

With this swirling uncertainty surrounding us, it's no surprise that gold futures prices recently closed at a 27-month high on more safe-haven demand amid risk aversion among traders and investors.

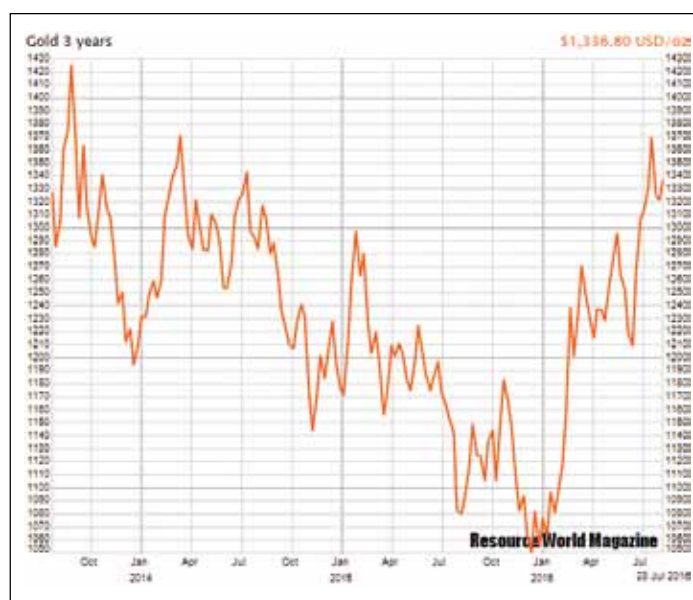
"I'm extremely bullish on precious metal companies," commented John Newell, a Precious Metal Fund Portfolio Manager at Fieldhouse Capital Management Inc. in Vancouver, BC. "Our near-term target for gold is in the US \$1,400 to US \$1,500/oz range, and it could be met this year. Silver has already reached our short term target of US \$21.00, and we believe it could hit US \$27.00 by the end of the year."

Newell pointed out that many Canadian companies have reduced operating costs in the past few years and are now profiting from a lower CDN/US exchange rate.

According to the World Gold Council, gold demand reached 1,290 tonnes in the first quarter of 2016, a 21% increase year-on-year, making it the second largest quarter on record. This increase was driven by huge inflows into exchange traded funds (ETFs).

Central banks remained strong buyers, purchasing 109 tonnes in the quarter. Since 2010, Central Banks have been net buyers of gold and their demand has expanded rapidly.

"I believe the current move in the miners could mirror the 2001 to 2010 bull market, which saw precious metal indexes increase more than 400%," stated Newell. "The Philadelphia Gold and Silver Index (XAU), the oldest precious metal index, went from a low of 45 in December 2001 to a high of 225 in December of 2010. The XAU index, which started about 32 years ago at an index value of 100, currently has a value of 103. On January 19th 2016, mining companies as represented in the XAU index were never



cheaper, hitting a low of generational low of 38.36."

Gold and silver stocks bottomed in 2013 and built a long base over the following two years. "They broke out of that trading range in January of this year," Newell said. "From 2013 until the end of 2015 gold stocks had a long eroding low, but all of the real damage was done in 2013 and since then many precious metal companies have done very well."

Newell thinks there is potential for another 10% to 15% gain in prices before the next meaningful correction but cautions that markets rarely move in a straight line, and the precious metal shares are no exception.

Right now Gold ETFs are seeing a lot of money being poured into them. However, according to Newell, in this particular gold market, corrections will happen faster, they will be deeper, more volatile and shake more people out. If history is a guide, most of the money will come into this sector at the top, or mini-tops and ETFs may not perform as well since investors pull capital out during corrections and managers are forced to reduce positions.

"The whole strategy of Fieldhouse Global Precious Metals Funds is that we are trying to take the volatility out of a very volatile precious metals market," said Newell. "Fieldhouse Capital Management utilizes hedging mechanisms in order to neutralize sector specific market risk."

Newell manages the Fieldhouse Global Precious Metal Fund that started trading on April 8 of this year, and tries to mirror the performance of the pilot fund that he started in December 2013, when the market bottomed. So far his fund has seen a 48% gain and he believes the precious metal bull market still has a long way still to go. ■

# Golden Queen Mining moving towards full production

Golden Queen Mining Co. Ltd. [GQM-TSX; GQMNF-OTCQX] is in the process of commissioning its 50%-owned Soledad Mountain gold-silver project about 8 km south of Mohave, California.

The other 50% of the project is held by Gauss LLC, a private company jointly owned by Leucadia National Corp. [LUK-NYSE], a diversified holding company, and Auvergne LLC a private company owned by the Clay family who have been long-term shareholders of the Soledad Mountain Project.

Despite popular opinion, there are some jurisdictions in California that are relatively mining friendly. Kern County in southern California is one of them. It represents the state's top oil-producing county and accounts for about 75% of California's oil production.

On March 1 this year, Golden Queen poured its first gold and silver doré bar. Since January a total of 2.3 million tons have been mined and operations are now running seven days per week. The company hopes to achieve commercial production by the second half of this year.

The mine hosts proven and probable reserves of 46.3 million tonnes averaging 0.66 g/t gold and 11.09 g/t silver (983,600 contained ounces gold and 16.5 million contained ounces of silver).

At the moment only about 65% of the resource has been included in the mine plan. With a planned throughput of 4.6 million short tons per year the mine is expected to crank out on average 74,000 ounces of gold and 781,000 ounces of silver per year. Recoveries are estimated to be 82.1% for gold and 50% for silver.



Stacking ore on the heap leach pad at the Soledad Mountain gold-silver mine. Photo courtesy Golden Queen Mining Co. Ltd.

According to an updated feasibility study published in 2015, life-of-mine operating costs are estimated at US \$9.99/tonne of ore processed. Total cash costs net of silver by-product credits and sustaining capex is estimated to be US \$558/oz.

Based on a price of US \$1,250/oz gold and US \$17/oz silver, the after-tax NPV (5%) was US \$213.9 million with an IRR of 28.3%. The mine is estimated to have a life of 11.3 years with a strip ratio of 3.41:1 waste to ore.

The mine plan assumes that about 27 million tonnes of waste rock will be sold as aggregate and removed from site prior to closure and reclamation. It also assumes that a portion of the leach pad is also sold as aggregate and removed from site. If the company cannot perform these reclamation procedures it must re-handle a significant quantity of residues either as backfill into the open pits or spread the residue on the property to meet reclamation requirements.

Gold and silver mineralization at Soledad Mountain occurs in a swarm of mainly northwest striking, subparallel to anastomosing (braided), epithermal quartz veins that formed in faults and fractures within the Miocene-aged rhyolitic volcanic units.

Golden Queen has 99.9 million shares outstanding, US \$16 million in cash and US \$48.4 million in debt. ■

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## Iconic Minerals starts lithium brine project drilling

by Ellsworth Dickson

**Iconic Minerals Ltd.** [ICM-TSXV; YQGB-FSE] has received encouraging results from its initial exploration at the 100%-controlled Bonnie Claire lithium brine project 30 miles north of Beatty, southern Nevada. The project is in the valley adjacent to North America's only producing lithium mine – Albemarle's Silver Peak Mine that has been in operation for about 50 years.

A MagnetoTelluric (MT) geophysical survey has identified a widespread conductor interpreted to be a brine horizon averaging over 300 metres thick. The results show a well-defined, very low resistivity layer starting approximately 200 metres below the surface and getting deeper to the east. The low resistivity layer is interpreted to be a brine filled reservoir unit. Evaporitic material sampled on surface, was interpreted to be derived from a brine which, when analyzed, was found to contain lithium values ranging from 50 to 340 ppm.

These results followed an earlier report stating that several of the geophysical lines were underlain by open-ended anomalies which prompted the company to increase its land position to 28.75 square miles (75 km<sup>2</sup>). Since the potential brine horizon extends beyond the original survey, an additional MT survey is under way to determine its extent.

The claims cover the gravity low and associated mud flats that could be used for evaporation ponds if significant lithium brines are discovered with drilling.

Iconic Minerals has a strong technical team that includes Dr. David Shaw, P.Geo, who was formerly Chairman of Salares Lithium whose Chilean lithium project was acquired by Talison Minerals. The team also includes Dr. Ian Hutcheon, P.Geo, who also consulted on the Chilean lithium project. Richard Kern, President and CEO, has extensive experience in exploration in Nevada where he was involved in several mineral discoveries.

Referring to the prospectivity of the Bonnie Claire Project, Dr. Shaw told *Resource World*, "So far, so good. The gravity survey shows we have a large basin making for a major sediment host reservoir potential. We have sampled the evaporite surface material which contained lithium. Odds are that the brine we anticipate

encountering at depth will contain lithium. The geophysical survey indicates the reservoir runs for kilometres in length and width and is hundreds of metres thick." He added that the grade will be determined with the upcoming drilling program.

Iconic has secured water rights options for evaporation ponds. The company has been granted a notice of intent (NOI) by the Bureau of Land Management (BLM) to start its lithium brine drilling program. Six of the eight approved drill locations that were applied for through the BLM have been approved. A drilling rig is being mobilized to the property.

The initial drilling program is three vertical drill holes designed to test potential brine horizons identified by the MT geophysical surveys. Drill targets will be spaced an average of 1.3 miles (2.1 km) apart and drilled to depths of 1,200-2,000 feet (365-610 metres) deep. The brine target thickness to be tested, as defined by MT, ranges from 330-980 feet (100-300 m) thick.

Iconic Minerals has raised about \$3 million, sufficient for its Bonnie Claire lithium exploration plans. ■

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# Argonaut Gold targets mid-tier status

Argonaut Gold [AR-TSX] has set its sights on becoming the next mid-tier gold producer in the Americas with the goal of reaching 300,000-500,000 ounces production annually.

“This is not our first rodeo,” said Peter Dougherty, President and CEO. “We ran two successful companies before in FMC Gold and Meridian Gold and we did very well for our shareholders. Argonaut Gold is our third launch.”

Currently, the company is producing gold from its two wholly-owned primary assets, the El Castillo heap-leach mine in Durango, Mexico and La Colorada heap-leach mine in Sonora, Mexico. Argonaut recently posted Q1 revenues for the combined operations of US \$35.3 million and net income of US \$4.3 million. Cash cost/gold ounce sold was US \$757 and all-in sustaining cost/gold ounce sold was US \$871. The average realized sale price was US \$1,181/oz gold.

This year the company plans to produce

130,000-140,000 gold equivalent ounces at cash costs between US \$750 and US \$800/oz produced.

Dougherty pointed out that “if you look at a snapshot of Argonaut Gold today, specifically at three of its current assets; our cash, our GST-type receivables, and inventory on the leach pad, and add those three numbers together you get about CDN \$150 million.”

That represents about 25% of the market capitalization of the company. In most producing companies this ratio is significantly lower.

With US \$47 million in cash, Argonaut has a strong balance sheet and will use this money to finance the San Agustin Project located just 10 km from its Castillo Mine.

“We envision that project will produce anywhere from 80,000 to 100,000 ounces per year at a lower cash cost than we see at our Castillo operation,” said Dougherty.

Measured and indicated resources at San Agustin are 845,000 oz gold averaging

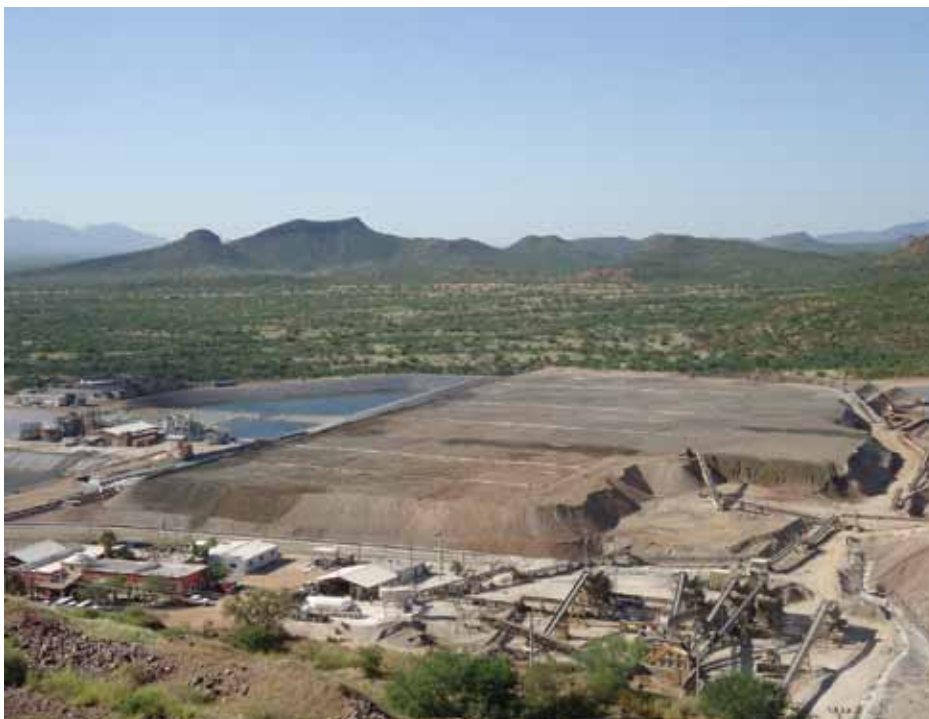
0.32 g/t gold and 28.2 million ounces silver averaging 10.7 g/t silver. According to a recent PEA, the project has a low initial capital requirement of US \$43 million. Cash costs are estimated at US \$648/gold equivalent ounce and the after-tax NPV (5%) is US \$89.9 million with an internal rate of return of 50%. Based on widely spaced step-out drill holes, Dougherty believes Argonaut may potentially double the size of San Agustin in the coming years.

The company also has two other advanced exploration stage projects in its production pipeline. These include the San Antonio Project in Baja California Sur, Mexico and the Magino Project in Ontario, Canada.

The San Antonio Project has measured and indicated resources of 1.7 million ounces averaging 0.83 g/t gold. The PEA estimates an after-tax NPV (5%) of US \$166 million and an IRR of 39% with a Capex of US \$88 million.

The Magino Project hosts measured and indicated resources of 4.1 million ounces averaging 0.88 g/t gold, with an after-tax NPV (5%) of US \$415 million and an IRR of 22% with a Capex of US \$540 million. The company intends to look for a partner to help bring this project into production to minimize shareholder dilution.

Argonaut Gold has 157 million shares outstanding and a market capitalization of CDN \$628 million. ■



Argonaut Gold's La Colorada open pit, heap leach gold-silver mine located 53 km southeast of Hermasillo, Sonora State, northwestern Mexico. Photo courtesy Argonaut Gold Inc.





# Orocobre increasing lithium carbonate production

Salar de Olaroz is a salt lake (salar means salt lake) located in the arid Puna region of Argentina's northwest province of Jujuy. Today it is home to Orocobre Ltd.'s [ORL-TSX, ASX] Olaroz Lithium Facility which is producing battery-grade lithium carbonate.

Once known for treating bipolar conditions, lithium is now a must have commodity for the emerging new energy vehicle industry. Elon Musk, founder of Tesla automobiles says for his company to produce 500 automobiles "we would basically need to absorb the entire world's lithium-ion production". Battery-grade lithium use in portable electronic devices has grown over 20% since 2000.

Orocobre's Olaroz Project hosts a JORC/NI 43-101-compliant measured and indicated resource of 6.4 Mt LCE (Lithium Carbonate Equivalent), 19.3 Mt KCl (Potassium chloride) and 1.85Mt (Boron) to only 197 metres in depth. It has a lithium resource grade of 690 mg/l Li with a Mg/Li ratio of 2.4. The company says the measured and indicated resource of 6.4 Mt LCE "is capable of sustaining current continuous production for 40-plus years with only ~15% of the defined resource extracted."

The Olaroz Lithium Facility is jointly owned by Orocobre (66.5%), Toyota Tsusho Corp. (25%) and the provincial government's company, JEMSE, (8.5%).

The facility was constructed in 2012 at cost of around US \$230 million and has been in production since late 2014. The facility has been steadily increasing production of lithium carbonate from 126 tonnes in the June 2015 quarter to 2,332 tonnes in the March 2016 quarter. The aim is to produce around 17,500 tonnes lithium carbonate annually.

The company explains the method of processing. "The processing method begins with the extraction of lithium-rich brine from borefields drilled on the salar.

The brine is then transferred to a series of evaporation ponds which utilize solar radiation for concentration and a precipitation process to remove impurities. The concentrated brine is then fed into the lithium carbonate plant which precipitates, micronizes and dries the finished high-quality lithium carbonate product," Orocobre's website notes. Because it is extracting from brine, Orocobre is a low cost producer with a site cash operating cost of around US \$2,500/tonne of lithium carbonate. The current price of lithium carbonate is around US 7,500/tonne FOB.

The company sells lithium carbonate to customers in Europe, Asia and the US in the chemicals manufacturing, industrial and battery industries as either battery, technical or industrial grade products. "In

process" material (recovered from within tanks in the purification circuit) is sold to plants in China for further processing.

In its March 2016 quarterly report, the company announced that its board has approved an "expansion study to evaluate a potential Stage 2 expansion of 17,500 tpa scheduled to start in Q2 with potential development from CY 17. The Capex cost is anticipated to be 40% (per tonne capacity) less than the establishment Capex for Stage 1 (i.e. a total estimated Capex of ~US \$140M). The inclusion of lithium hydroxide is to be considered," the report said.


Still Orocobre has rewarded shareholders well over the past 12 months with TSX share price sitting at \$1.33 at the start of July 2015 and at the time of writing (6 July 2016) \$4.73. ■



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# NEW DISCOVERIES

## XTRA-GOLD FINDS NEW GOLD ZONES AT COBRA CREEK IN GHANA

Xtra-Gold Resources Corp. [XTG-TSX; XTGRF-OTCBB] has reported the latest channel sampling results from the Cobra Creek gold corridor prospect, on the company's 100%-owned Kibi gold project in the Kibi-Winneba greenstone belt, in Ghana, West Africa. The channel sampling discovered new high-grade gold zones.

Highlights of the recently implemented outcrop stripping/channel sampling program include:

- Saw-cut channel sample composites grading 23.62 g/t gold over 5.0 metres, including 67.9 g/t gold over 0.9 m (No. KBCS023-46); and 20.48 g/t gold over 4.58 m, including 35.47 g/t gold over 1.9 m (No. KBCS023-47) from newly exposed breccia zone within central portion of high-grade gold shoot fold structure;
- High-grade gold shoot extended 40 m to northeast, to total strike length of approximately 110 m, with saw-cut channel sample composites grading 12.0 g/t gold over 4.3 m, including 39.7 g/t gold over 0.85 m (No. KBCS023-12); and 4.1 g/t gold over 7.93 m (No. KBCS023-2);

- New high-grade shear structure discovered along northwest flank of high-grade gold shoot with channel sample composites grading 10.26 g/t gold over 3.37 m, including 34.3 g/t gold over 0.75 m (No. KBCS092-3); and 13.17 g/t gold over 3.15 m, including 31.5 g/t gold over 0.95 m (No. KBCS092-4);

- New auriferous structure discovered along southwest extension of the No. R2 high-resistivity trend spatially associated with the main shear structure, approximately 625 m southwest of the high-grade gold shoot, returning saw-cut channel intercepts of 1.07 m grading 23.6 g/t gold (No. KBCS090-V4) and 3.85 m grading 4.62 g/t gold (KBCS090-10).

The Cobra Creek gold corridor project corresponds to an approximately 550 m wide, northeast-trending, multi-structure braided shear zone system traced to date over an approximately 850 m strike length. The quartz feldspar porphyry (QFP) hosted mineralized corridor encompasses at least nine auriferous shear zones ranging from approximately 1.0-25 m in apparent width. Gold mineralization exhibits strong spatial association with two prominent

northeast-east-northeast high-resistivity trends appearing to reflect broad zones of strong iron carbonate (and/or silica) alteration. Approximately 1.8 km long by 300 m to 800 m wide, the anomalous gold-in-soil trend is spatially associated with the structural corridor.

The present surface sampling results correspond to a mechanized outcrop stripping/channel sampling program implemented from mid-October, 2015, to early April, 2016, on the Cobra Creek gold corridor project; with the exploration work designed to further delineate the high-grade gold shoot located at the northeastern extremity of the main shear structure and to test the southwestern extension of the approximately 1,100 m long No. R2 high-resistivity trend spatially associated with the main shear structure.

Reported intercepts are channel string lengths; true width of mineralization is unknown at this time. Due to irregular bedrock surface the reported saw-cut channel intercepts are sample intersection lengths irrespective of mineralization topography and may not represent true width of mineralization.

Outcrop stripping successfully extended the high-grade gold shoot (blow-out) over an approximately 40 m distance to the northeast, in addition to exposing a strongly auriferous structural breccia within the central portion of the shoot. The northeast-trending, strongly pyritized crackle breccia extending over about 20 m strike distance and ranging 0.4-5 m in apparent width returned high-grade channel intercepts of 5 m grading 23.62 g/t gold, including 67.9 g/t gold over 0.9 m (No. KBCS023-46); and 4.58 m grading 20.48 g/t gold, including 35.47 g/t gold over 1.9 m (No. KBCS023-47).

Six channel strings encompassing 21 saw-cut channel samples totaling 16.76 m were collected from the breccia zone with individual assay values ranging from

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# NEW DISCOVERIES

2.2 g/t to 67.9 g/t gold; and the length-weighted average grade of all 21 samples being 19.91 g/t gold. The southwestern extremity of the breccia zone sits immediately adjacent to the rock chip channel intercept of 6.7 m grading 32.32 g/t gold, including 82.22 g/t gold over 2 m in scout trench No. TCK002.

Latest channel sampling established the high-grade shoot over about 110 m strike length and up to approximately 15 m in apparent width; with geological mapping to date appearing to indicate that the high-grade gold mineralization occurs in hinges of folded quartz/Fe-carbonate/tourmaline veins hosted along a shallow southwestern-plunging fold structure, and associated fold axis crackle breccia.

The outcrop stripping program also yielded a new high-grade shear structure along the northwestern flank of the high-grade gold shoot. Channel sampling across the folded quartz/Fe-carbonate/tourmaline veining exposed over an approximately 12 m strike length returned mineralized intercepts of up to 3.37 m grading 10.26 g/t gold, including 34.3 g/t gold over 0.75 m (No. KBCS092-3); and 3.15 m grading 13.17 g/t gold, including 31.5 g/t gold over 0.95 m (No. KBCS092-4). The parallel structure lying approximately 25 m northwest of the high-grade gold shoot lies along the northwest margin of the prominent No. R2 high-resistivity trend spatially associated with the main shear structure.

Channel sampling of folded quartz/Fe-carbonate/tourmaline veining over an approximately 15 m strike distance on a stripped outcrop lying along the southwestern extension of the No. R2 high-resistivity trend spatially associated with the main shear structure, approximately 625 m southwest of the high-grade gold shoot, returned saw-cut channel intercepts of 1.07 m grading 23.6 g/t gold (No. KBCS090-V4), 1.02 m grading 10.1 g/t gold (No. KBCS090-5), and 3.85 m grading 4.62 g/t gold (KBCS090-10). Of considerable exploration interest is the presence of a flat-lying chargeability (IP) anomaly centred on the resistivity trend approximately 115 m vertically below the auriferous veining.

A 2,000-metre diamond core drill program began on the Cobra Creek gold corridor project June 7. The first-pass drilling program is designed to test up to 10 priority drill targets including three major high-grade gold shoots (blow-outs), including: high-grade gold shoot; L17600N shoot; and Lightning shoot.

## 92 RESOURCES CONFIRMS LITHIUM OCCURRENCE; STARTS PROGRAM

92 Resources Corp. [NTY-TSXV] reported that an exploration program, including detailed mapping and systematic channel sampling of known pegmatites, is underway at the 100%-owned Hidden Lake lithium property located just north of

Highway 4, approximately 40 km northeast of Yellowknife, Northwest Territories.

The Phase I program will target the Spodumene-rich LU dyke D12, which was sampled earlier in the summer as well as prospective pegmatite dykes previously identified from aerial photography. The company has contracted Dahrouge Geological Consulting Ltd. of Edmonton, Alberta to conduct the ground mapping and channel sampling of the property. Lithium mineralization was known to occur on the property and the recent sampling confirmed the prospectivity of the property.

Adrian Lamoureux, President and CEO of 92 Resources, said, "We are pleased to initiate a follow up program to our recent reconnaissance site visit, when five samples were collected, yielding values ranging from 1.64% to 3.06% Li<sub>2</sub>O, with an average grade of 2.54% Li<sub>2</sub>O. This certainly indicates the exceptional potential Hidden Lake has to host a number of highly prospective spodumene-bearing pegmatites."

The dominant lithium-bearing mineral appears to be very coarse grained, light grey to light-greenish grey spodumene. The pegmatite continues both to the northeast and southwest of the sampled area.

The company has received proceeds of \$862,820 from the exercise of 10,252,700 warrants. ■



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# Canadian Government commits to implementing United Nations Declaration of the Rights of Indigenous Peoples

## DOES “FREE, PRIOR AND INFORMED CONSENT” IMPLY ABORIGINAL VETO OVER INDUSTRIAL DEVELOPMENT?

by Robert Simpson

In May 2016, the Canadian Government attended the Permanent Forum on Indigenous Issues to announce Canada’s decision to drop the qualifications to the Declaration of the Rights of Indigenous Peoples (UNDRIP). Some in the mineral and mining investment community worry the endorsement of UNDRIP will spark a legal onslaught as Indigenous groups rush to the courts to secure the practical implementation of UNDRIP rights, and in particular, Article 32, which many believe gives Indigenous people a veto over development on their lands and traditional territories.

UNDRIP is a substantial document, with 46 articles ranging from the much debated requirement for “free, prior and informed consent” on resource development to commitments to support Indigenous language retention and education. The declaration recognizes Indigenous Peoples’ basic human rights, as well as rights to self-determination, equality and land, among others.

“Put simply,” says Ken Coates, Senior Fellow with the Macdonald-Laurier Institute, “UNDRIP is not an Indigenous declaration of independence. In many cases – such as influence over resource development – existing modern treaties and the “duty to consult and accommodate” requirements established by the Supreme Court likely already provide Indigenous peoples with the kind of authority envisaged under the Declaration.

According to Tom Issac, in the *Canadian Bar Association National Magazine* article, the Calgary-based head of aboriginal law practice at Osler, Hoskins & Harcourt LLP says, “UNDRIP does not constitute a veto but it does talk about consent. So it’s something of a semantic game, but whether it’s a veto or consent, it has the same net

effect. And giving 600-plus groups a veto over developments would be a fundamental shift in how we govern ourselves.”

Others argue that International law can only be brought in through domestic law – the federal government would have to write the veto into the Constitution and this would require provincial support and this is not going to happen.

The Trudeau government hasn’t said how it plans to approach “implementing” UNDRIP; a statement issued by the office of Indigenous and Northern Affairs Minister, Carolyn Bennett, suggests it will be “working in consultation with Indigenous groups and various stakeholders on an approach to the implementation of the Declaration.”

Vague as it is, it’s not at all clear that UNDRIP actually offers Aboriginal Canadians more clout than they wield now. The duty to consult, when combined with an aboriginal community’s effective control of the land it occupies, can amount to a virtual veto over how the land is used.

“Canada believes its constitutional obligations serve to fulfil all of the principles of the declaration, including free, prior and informed consent,” Minister of Indigenous and Northern Affairs, Bennett, said in a recent speech.

But already adoption of UNDRIP is being pointed to help First Nations fight against the Energy East Pipeline, according to some New Brunswick Aboriginal leaders.

Ron Tremblay, Grand Chief of the Wolastoq Grand Council, believes the declaration will give Aboriginal communities veto power over contentious resource projects including the pipeline, which would transport crude oil from Alberta to New Brunswick.

“I’m very confident that by the Liberal federal government supporting the declaration ... that we will have the opportunity to say no,” said Tremblay.

Darrell Paul, Executive Director of the Union of New Brunswick Indians, agrees that support for the UN declaration will bolster First Nations’ ability to say no to resource projects.

“I think it will help a great deal, it will support the position that Aboriginal title does exist in New Brunswick,” said Paul.

If the government follows through on its plan to enforce the UN declaration through law, it’s clear that Indigenous communities would have the power to halt resource projects, according to Larry Chartrand, law professor at the University of Ottawa. “If they don’t want to go along with the project at the end of the day they can say no and that’s the equivalent of a veto,” said Chartrand in a recent *Globe and Mail* article.

“The Constitution includes a duty to consult Aboriginal Peoples, but it doesn’t go as far as a duty for consent. Enacting the UN document would ultimately give more power to Indigenous Peoples on development decisions,” said Chartrand.

While it may take some time for the impact Section 32 of the UNDRIP to be fully understood, the Canadian exploration and mining industry has been at the forefront of engagement, consultation and accommodation (Section 35 of the Canadian Constitution) for many years now, and most realize that without the support of local communities and Indigenous people, the chances of permitting a project are substantially reduced.

In effect, some form of community and Indigenous veto of mining projects has existed for years. ■

**STARCORE INT'L MINES PRODUCING DORÉ BARS**

**Starcore International Mines Ltd.** [SAM-TSX] reported its pre-production results from the Altiplano Plant located in Matehuala, Mexico. The company previously reported on February 15, 2016 that it had poured its first doré bar, weighing in at 21.131 kg., from purchased precipitates (see news release dated February 29, 2016).

Since then, the plant has been receiving concentrate deliveries to test the full facilities of the plant and procedures. As of mid-June, the company has processed over 90 tonnes of concentrate purchased from three different suppliers to produce 40.16 kg of metal doré bars, which included 2.01 kg of gold and 38.15 kg of silver.

“We have proven the ability to process various types of concentrate and expect to do this profitably with a consistent supply of concentrates and production,” said Robert Eadie, President. “Having tested concentrates received from 14 different suppliers, we are currently negotiating concentrate purchase agreements for the best quality concentrate that will bring a consistent supply. As stated before, we see the Altiplano plant as a synergistic cash-flow producing arm of the company, growing our asset base for our shareholders.”

The doré bars were shipped to a refinery and sold at spot rates for gold and silver at the time of shipment. All proceeds of sales have been capitalized to the development costs of the facility, in accordance with accounting standards, until such time as Altiplano is receiving consistent supply of concentrates and is achieving consistent operating results.

Located within a historic mining district in an area that is home to numerous medium-sized mining operations, the Altiplano plant is a newly designed facility that has the best equipment and operations team to offer an accessible leaching process to miners and concentrate producers.

Starcore is engaged in exploring, extracting and processing gold and silver through its wholly-owned subsidiary,

Compañía Minera Peña de Bernal, S.A. de C.V., which owns the San Martin Mine in Queretaro, Mexico.

Starcore has also completed drill hole 31-79 in Area 31 at the San Martin Mine. The hole intercepted a zone of limestone breccia followed by manto mineralization. High-grade manto mineralization with visible gold was recovered between 48.65 and 58.9 metres. The weighted average grade of this 10.25-metre wide intercept is 65.17

g/t gold with 128.26 g/t silver. Prior to the high-grade intercept, the limestone breccia contained elevated silver values over 10 metres including a 2-metre section grading 1.60 g/t gold and 105 g/t silver between 42.25 and 44.25 metres.

**PROBE METALS COMPLETES ADVENTURE GOLD MERGER**

**Probe Metals Inc.** [PRB-TSXV] and **Adventure Gold Inc.** reported completion of the plan of arrangement under which Probe Metals has acquired all of the outstanding common shares of **Adventure Gold** to create a well-funded Québec and Ontario focused gold explorer and developer.

Jamie Sokalsky, Chairman of Probe, said, “We would like to welcome both

shareholders and employees of **Adventure Gold** to **Probe Metals**. With the combination of a strategic land position and strong balance sheet, the company is well positioned to continue adding value for shareholders. This acquisition is consistent with our strategy to acquire, explore and develop highly prospective gold properties and we are excited about the significant potential for additional discoveries.”

All the issued and outstanding common shares of **Adventure** were acquired by **Probe** for consideration of 0.39 of a common share of **Probe** for each common share of **Adventure**. In connection with the completion of the merger, **Probe** issued 31,585,765 to the former shareholders of **Adventure Gold**.

Marco Gagnon, former President and CEO of **Adventure Gold**, has been appointed to **Probe's** management as Executive Vice President and as a director of **Probe**, effective immediately. Gagnon is a senior mining exploration professional with 25 years of experience. He graduated in geology from Université du Québec à Chicoutimi.

**Probe** also completed a private placement financing which raised gross proceeds of \$2,904,000. The offering consisted of the sale of 4,440,000 common shares at a price of \$0.66 per Share.

**Goldcorp Inc.** [G-TSX; GG-NYSE] purchased all 4,400,000 shares, and now beneficially owns and controls 10,577,846 common shares of **Probe** which represents approximately 15% of **Probe's** issued and outstanding common shares. **Probe** also granted **Goldcorp** the right to maintain its pro rata ownership percentage during future financings and the right (but not the obligation) to participate in any future equity financings to the extent required to allow **Goldcorp** to increase its equity ownership interest in **Probe** to a maximum of 19.9% of the issued and outstanding common shares. Such rights shall extinguish if **Goldcorp** ceases to beneficially own at least 7.5% of the issued and outstanding common shares of **Probe** (on an undiluted basis). ■





## Golden Arrow Chinchillas pre-development program underway

Golden Arrow Resources Corp. [GRG-TSXV; GAC-FRA; A0B6XQ-WKN] is conducting a 6,500-metre Phase VI drilling and exploration program at its 100%-owned Chinchillas silver (lead-zinc) project in mining-friendly Jujuy Province, Argentina. Drilling will focus on exploration, condemnation and infill holes.

The company recently completed a NI 43-101 compliant technical report that stated measured and indicated resources total 34.2 million tonnes grading 91 g/t silver, 0.82% lead and 0.57% zinc, for a silver equivalent of 155 million oz. Inferred resources stand at 39.2 million tonnes grading 42 g/t silver, 0.44% lead and 0.76% zinc, for a silver equivalent of 90 million oz.

Brian McEwen, PGeol, VP Exploration &

Development, said, "The area of the resource reported in the last 43-101 is approximately 70 hectares. Our property is about 2,000 hectares. We have indications of lots more mineralization from mapping and drilling. The project has the potential of getting a lot bigger. This next phase of drilling along with the recently completed exploration program will test the true potential outside of the main Chinchillas area."

Golden Arrow has an agreement with Silver Standard Resources Inc. [SSO-TSX; SSRI-NASDAQ] whereby they have proposed creating a mining merger joint venture to combine the Chinchillas Project and Silver Standard's nearby Pirquitas silver mine. Silver Standard has committed up to US \$12.6 million for project evaluation and,

assuming the agreement is completed, under the JV, Silver Standard would be operator and 75% owner of Chinchillas with Golden Arrow owning the remaining 25%.

The benefits of this arrangement will be that Silver Standard's Pirquitas Mine will process Chinchillas ore as the 4,000 tpd Pirquitas operation is mined out in the near future and Golden Arrow's Chinchillas Project will be fast-tracked to production. Golden Arrow will receive cash payments from Silver Standard of up to CDN \$2 million upon reaching certain milestones in the preliminary period, and is accruing a 25% interest in the cash flow from Pirquitas from October 1, 2015 to the exercise of the option.

By year end, Silver Standard will tran-

Drilling at Golden Arrow's Chinchillas property in northwest Argentina which is funded by Silver Standard Resources. Photo courtesy Golden Arrow Resources Corp.

sition from open pit mining to processing its 2.21-million tonne stockpile until early 2018 when it is anticipated that Chinchillas ore would be available, making for a continuous operation.

Joseph Grosso, Executive Chairman, President and CEO of Golden Arrow, said, "The PEAs we have completed are obsolete given a combined operation with Pirquitas. All processing will be done at the Pirquitas facility so there would be completely different economics."

With any mining operations, metal prices are beyond the control of the company, prompting the question: Are silver grades at Chinchillas robust enough to keep mining economics positive with up-and-down silver prices?

"Yes, we believe they are," said Grosso. "We are examining several operating sce-

narios. We are confident that we will be able to demonstrate that the project is able to support lower tonnage, higher grade scenarios such as envisioned with Pirquitas or much higher throughput at lower grades as examined in the previous PEAs."

The previous Phase V, 15,000-metre, drill program was successful in converting a significant portion of the resources within the high-grade Silver Mantos area to the measured and indicated categories required for prefeasibility or feasibility-level engineering. The Phase V and VI drill programs are part of the Chinchillas Project pre-development activities, funded by Silver Standard.

Prior to starting Phase VI drilling, mapping and trenching of several prospective areas were completed to define drill targets. Drilling is testing the Chinchillas South target area, which extends from the main Chinchillas deposit about 1.5 km to the south. The area was previously tested by only eight drill holes in the Phase III and Phase V drilling. Results included multiple intercepts of silver, lead and

zinc in most holes, such as: 69 g/t silver, 1.1% lead and 1.9% zinc over 15 metres in CGA-272W, including 165 g/t silver, 2.0% lead and 3.6% zinc over 3 metres; and 15 metres averaging 181 g/t silver and 1.1% lead in CGA-113.

Field work may include additional geophysics in areas of the property not previously covered. Engineering, metallurgical, and environmental studies are in progress.

Grosso explained that Golden Arrow will be 25% shareholder of the Chinchillas Mine operating company. In addition, the company has several other projects in the pipeline, and is evaluating several other potential projects.

Golden Arrow also has three projects in Argentina that are available for option; the Mogote copper-gold project, the Caballos copper-gold project and the Portrerillo gold-silver project.

Grosso is pleased with the election of new, pro-mining Argentine government which is making foreign investment much more attractive. ■

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# Nicola Mining: a new start with cash flow

by Ellsworth Dickson

A little over two years ago I toured the Treasure Mountain silver mine and mill of Huldra Silver, the predecessor company to Nicola Mining Inc. [NIM-TSXV; HUSIF-OTC]. Unfortunately, shortly thereafter, the mine suspended operations due to a lack of operating funds. The company was able to carry on under the Companies' Creditors Arrangement Act allowing it to restructure its financial affairs.

Today, with a name change, new management and recent financings, the company has another shot at success. Guiding the revived company is Peter Espig, CEO, who is uniquely qualified to rise to the challenge. A former investment banker with Goldman Sachs and armed with a B.A. from the University of British Columbia and a MBA from Columbia Business School, Espig also served as Vice-President of Olympus Capital, a New York private equity firm. As a member of Goldman's Special Situations group, he participated in creating opportunistic platforms and corporate restructuring, the latter of which is now his specialty.

Nicola Mining has a number of 100%-owned assets, two of which are generating cash flow. The primary cash generator is its mineral processing facility located on the historic Craigmont Mine site, 14 km northwest of Merritt, British Columbia. The fully permitted 200 tonne-per-day mill (gravity and flotation) is designed to process gold and silver ores.

The mill originally cost \$21.6 million to construct and comes with a \$2.0 million fully-lined tailings impoundment with zero discharge into the local environment. In addition, the company paid \$8.0 million in order to own the land freehold, which highlights the value of its mill infrastructure.

Currently, the mill is processing gold ores from the Dome Mountain gold mine (8 g/t gold) near Smithers, BC, and ore from Siwash Minerals (4 g/t gold estimate)



Left to right, Dr. Paul Johnston, P.Geol, Director, Peter Espig, CEO, Brian May, Project Geologist, and Tyler Punk, Project Geologist at Nicola Mining's 200 tonne-per-day mill near Merritt, British Columbia. Photos by Ellsworth Dickson.

which is located about 90 minutes by road from the mill. Rather than the usual toll-milling arrangements, Nicola has created mutually beneficial profit sharing partnerships with its milling clients. In addition, the mill has the potential to be expanded to process 1,000 tonnes/day.

While the company is permitted to pump up to 1.3 million gallons of water per day from wells, it has found that it is only needed in emergencies. Normally, water for flotation in the mill is derived from natural springs in the nearby mountain; the water is recirculated and neutralized.

Another cash flow generator is sales from the extensive sand and gravel beds on the Craigmont property. Current revenues are \$50,000-\$70,000/year with operations permitted for up to 60,000 tonnes per year. A rough estimate of approximately 21-29 million tonnes of sand and gravel represents about 200 years supply for the local market.

There is another potential source of cash flow in the 90 million tonnes of rock that was stripped and stockpiled during open pit mining at the Craigmont Mine in the 1960s. With copper prices at approximately US \$0.60/lb back in the 1960s, this

copper-mineralized rock was not economic at the time; however, with copper trading for US \$2.05/lb, these huge stockpiles could be a real cash cow. Craigmont's cut-off grades ranged between 0.7-1.2% copper, easily ore-grade considering that the material has already been mined. It is envisaged that the stockpiled material would be processed in a large copper mill in southern BC. Nicola is planning further sampling of the stockpiles.

Geological studies have indicated that a large, lower grade halo surrounds the high-grade Craigmont ore body. A great deal of knowledge has been gained by company geologists re-logging some 7,000 metres of old Craigmont diamond drill cores conveniently stacked nearby. Now named the Thule property, this copper-iron skarn and copper porphyry area will be the focus of exploration for the 2016 field season where a 1,500-metre drill program is planned. This area is characterized by carbonate-rich silicate and intrusive rocks found along the southern flanks of the Guichon Batholith, approximately 20 km south of the 140,000 tpd, Teck Resources, Highland Valley copper operation.



Diamond drilling of the Thule mineralized halo has returned encouraging results. Hole S-24 averaged 0.7% copper over 319.73 metres with higher-grade zones including 48.77 metres of 1.86% copper. The hole ended in 0.25% copper. Highland Valley averages below 0.3% copper.

Two zones exist around the former Craigmont ore body with proven ore grades – Body 3 and the Embayment. There are several other zones exhibiting surface copper mineralization which Nicola plans to investigate. A recent trenching program returned samples ranging up to 1.86% copper. The Embayment, WP, Titan Queen, Eric and Marb zones will be the focus of the drilling program.

Part of the Craigmont operations were underground and it is a bonus for Nicola that the workings can be rehabilitated which will enable company geologists to examine copper mineralization in situ.

Lastly, Nicola also owns the Treasure Mountain silver-lead zinc mine, currently on care and maintenance, 27 km east of Hope, BC near the Coquihalla Highway that leads to the mill. The mine is a stand-alone project with complete camp facilities and related workshops, etc. The Treasure Mountain Mine has four levels with total vein indicated resources of 33,000 tonnes averaging 828 g/t silver, 4.16% lead and 3.8% zinc, for 880,000 oz silver, 3.03 million lbs lead and 2.76 million lbs zinc. Inferred resources are 3.58 million oz silver, 7.37 million oz lead and 11.54 million lbs zinc.

No work at the mine itself is planned for 2016; however, some extremely high-grade silver samples at the MB Zone on the northern backside of the mountain nearby will be followed up this summer.

An interesting sidebar is Nicola Mining's plans to re-seed the old tailings impoundment area. The idea is to acquire unwanted salt-contaminated soil from Vancouver area construction projects to provide a layer on top of the tailings that can support local flora.

Nicola Mining management has implemented a sound business strategy whereby exploration costs will be partially covered by cash flow. ■



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# Transition Metals: an active project generator

by Jennifer S. Getsinger, PhD, PGeo

**Transition Metals Corp.** [XTM-TSXV], a junior exploration company based in Sudbury, Ontario, is touting the project generator business model as a way to offer a well-chosen assembly of prospective properties to investors at various levels of involvement, such as direct equity, earned interest in partnerships and strategic alliances. Their award-winning team, rich with long-term geological expertise, aims to specialize in “converting new exploration ideas into Canadian discoveries,” according to Scott McLean, President and CEO of XTM, in a recent interview.

What is impressive about Transition Metals’ portfolio is not just the number of projects (32 and rising) and the ground covered (>2,000 km<sup>2</sup>), nor the grades and resource estimates of all the different commodities, but that the company clearly paid attention to the quality of these projects with extensive research, thoughtful consideration, and due diligence. Due diligence is hardly a new concept, but its importance cannot be over-emphasized.

The project generator business model, topic of a webinar in June 2016 moderated by Rick Rule of Sprott Global Resource Investments with a panel consisting of CEOs from Transition Metals, Eurasian Minerals and Lara Exploration, is a new twist on a traditional strategy similar to diversifying a portfolio.

Instead of an exploration company concentrating 100% on one particular project with merit and trying to develop it single-handedly into a mine, several worthy projects are identified, researched, and explored up to the point of showing promise, and then shared with partners who can help take it from there to success. Investors can become involved by purchasing equity in a project generating company, such as Transition Metals, or more deeply by entering into partner agreements, providing financing for a particular project or group venture.

The probability of new discoveries is increased while shareholder equity dilution is minimized, and partner capital and expertise can be leveraged. As the webinar pointed out, different property assets can be matched with the right people, thus leading to a higher likelihood of project success, that is, actually mining commodities. The importance of the right people was also emphasized: knowledgeable geologists and good management, committed to due diligence in spite of the time and effort it takes, are essential.

Transition Metals focuses on projects mainly in Canada, a safe jurisdiction with successful mining history and abundant natural resources. Two subsidiary companies, **Sudbury Platinum Corp.** and **Canadian Gold Miner**, are in charge of two of its main plays, the Sudbury PGM-nickel-copper area and the Abitibi Gold Belt. Sudbury Platinum (36% owned by XTM) plans a 18,000-metre drilling program over the coming months at the Aer-Kidd PGM-Ni-Cu property, and geophysical studies at the Lockerby East Ni-Cu property.

Two other PGM prospects in Ontario (held by XTM), the Sunday Lake (mid-continent rift region) and Saturday Night projects, have approved JEAP (Junior Exploration Assistance Program) funding for 2016 geophysical and drilling exploration. The Sunday Lake discovery, in partnership with **Implats** (Impala Platinum Holdings Limited [IMP-Jo’burg; IMPUY-OTCQX]), won an award in 2014 from the Northwest Ontario Prospectors Association.

In March 2016, Transition Metals spun out many of its Abitibi gold projects to private subsidiary, Canadian Gold Miner. Several properties along historical gold-mining trends in various stages from early to advanced exploration are to be consolidated (150 km<sup>2</sup> already) and managed by Canadian Gold Miner. One of the highlights is the Bjorkman high-grade gold showing on the Midlothian Project



Transition Metals COO Greg Collins sampling a high-grade gold occurrence near Matachewan, Ontario. Photo courtesy Transition Metals Corp.

recently acquired from Kiska Metals Corp. Transition Metals has also optioned its Haultain Project in the Gowganda gold trend to **Aldershot Resources Ltd.** [ALZ-TSXV; ALZTF], which is planning a 3,000-metre drill program this year.

The strategic alliance between Transition Metals and Nunavut Resources Corp. (Inuit-owned) to explore the Kitikmeot Region of Nunavut was set to last from 2012 to 2017 but will be extended. Targeting gold, base metals, and diamonds, the alliance aims to generate further mineral exploration projects mainly on Inuit lands. Highlights include Itchen Lake banded iron formation gold prospect, Arcadia Bay gold exploration, and Article 41 Lands diamond exploration.

Active partners are also sought for further copper exploration at the Janice Lake, Saskatchewan, drill-ready project in potential near-surface sediment-hosted copper deposits, where previous grab samples have exhibited more than 9% copper.

According to Scott McLean, reasons to invest in XTM include their high quality portfolio of exploration opportunities, the project generator business model that mitigates risks and increases chances of good discoveries while minimizing dilution, their top level exploration team, and variety of partner advantages. ■

# Prosper Gold defining drill targets at Ashley gold prospect

Peter Bernier, Chairman, President, CEO, reports Prosper Gold Corp. [PGX-TSX] is conducting airborne geophysical surveys at the 100% optioned (2% NSR) Ashley gold prospect in Ontario. The past-producing Ashley Mine is approximately 60 km south-southeast of Timmins. The company has partnered with CGG Multi-Physics to carry out a variety of surveys, including gravity, electromagnetic and magnetic surveys as well as ground-based magnetotellurics. Covering a 98 km<sup>2</sup> area, the surveys will assist Prosper in defining drill targets for an upcoming drilling program.

“We anticipate that our diamond drilling program will start in late August after we have modeled our soil surveys and geophysical data and picked our targets,” said Bernier in a telephone interview. “We are considering about 40 drill holes totaling some 7,000 metres.”

He explained that although the Ashley Mine was an underground operation, the company is not looking at dewatering the mine. In fact, Prosper is seeking a bulk tonnage target, rather than just high-grade narrow veins. The Ashley Mine produced 50,099 ounces of gold from 157,636 tons

grading 0.32 oz/ton gold from 1932-1937.

“To obtain a dewatering permit would be costly and time-consuming,” said Bernier. “Although we appreciate that there are high-grade gold veins, we want to put our funds into finding a bulk tonnage gold deposit in the syenite rocks.

We don’t want to just ‘high-grade’ the remaining ore in the mine when there is excellent bulk tonnage potential similar to what we found at the Blackwater-Davidson in British Columbia, although in a different geological environment. Some drill holes will test the mine area from the surface.”

Widespread gold values on the Ashley Mine property have been demonstrated with surface samples returning up to 600 grams/tonne gold near the mine and 300 grams/tonne gold 1.3 km distant.

Bernier said that the company is conducting an airborne geophysical survey on the nearby 90% optioned Matachewan prospect; however, efforts are currently mainly focused on the Ashley property and the neighbouring 90% optioned Wydee property.

Prosper Gold’s Star copper project in the Sheslay Valley of northwest British Columbia is on hold for now pending higher copper prices and a renewed interest in that play. “It would be nice to get a major company or foreign money interested as it will cost about \$4 million for a proper drill program,” said Bernier. “It is still a great property but right now investors want gold.” ■



Left to right: James Hedalen COO, Pete Bernier CEO & President, Dirk Tempelman-Kluit, VP Exploration, all with Prosper Gold, at the past-producing Ashley Mine in northern Ontario. Photo courtesy Prosper Gold Corp.



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## Nevada

Eastside Gold Project\*

- **2015:** Approval of Environmental Assessment
- **2015:** 12,300 meters drilled
- **2016-Q1:** Commence drilling: 15,000 m
- **2016-Q4:** Planned Resource Estimate



## French Guiana

Montagne d'Or Gold Deposit

- **Gold Resource:** 3.9 M oz. Indicated  
1.1 M oz. Inferred\*\*
- **Budget - 2016:** US \$10 million (approx)
- **2016:** Resource Update
- **Q4, 2016:** Bankable Feasibility Study (BFS)†

## PEA Highlights

Preliminary Economic Assessment (PEA)††

- **NPV (at 5%):** US \$451 Million (After-tax)
- **IRR:** 23% (After-tax)
- **AISC:** US \$711 per ounce
- **Payback:** 3.5 years
- **LOM:** 13 years
- **Production:** 3.05 M oz (LOM)  
273,000 Oz in years 1-10
- **Average Mined Grade:** 2.0 g/t Au (years 1-10)

\* Dates are planned, tentative, and subject to change; All amounts in USD.  
\*\* For complete disclosure of the mineral resource, refer to news release dated Apr 21, 2015, and the NI 43-101 technical report by SRK, dated Jun 3, 2015.  
† Refer to news release dated Oct 16, 2016 for more details on the completion of the BFS, and Columbus Gold's agreement with Nordgold (LSE: NORD LJ).  
†† For more details on the PEA, refer to news release dated Jul 8, 2015.

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## Strongbow Exploration acquiring UK tin project

by Laura Barker

**Strongbow Exploration Inc.** [SBW-TSXV], with 27% ownership held by **Osisko Gold Royalties** [OR-TSX], has finalized an agreement to obtain surface and underground mining rights for the South Crofty tin project in the UK. This development aligns with their plan to build a strategic metals company through acquisition and exploration of assets in North America and the UK related to tin and tungsten.

The agreement was formed with Galena Special Situations Fund and Tin Shield Production Ltd. to purchase 100% interests in Western United Mines Limited (WUM) and Cornish Minerals Limited Bermuda (CML), which own the project.

The project is a past-producing underground tin mine located in the district of Cornwall, England. Mining in the district reportedly dates back 400 years, with

'modern' mining at South Crofty starting in 1967. The mine was closed in 1998 and allowed to flood after several years of depressed tin prices.

Today, the timing may be right for South Crofty as Strongbow will acquire a 100% interest in WUM and CML by funding the exit from care and maintenance. President and CEO, Richard Williams, said, "The average indicated resource grade at South Crofty is 1.8% tin. Inferred is 1.9%. At the current tin price (~US \$17,000/tonne), that is like mining 6%-7% copper (US \$4,800/tonne) if you want to put it into that perspective."


In addition, recent attitudes towards mining in the UK are changing. Williams said, "In the UK we are seeing strong support from local government and local populations to see new mines be put into production. Cornwall has a long history of mining – an area currently where there is high unemployment. Putting this mine back in to production will be welcome in the local economy."

The underground mining permission at South Crofty is valid until 2071, and covers an area of 15 km<sup>2</sup> to a working depth of 1,500 metres below surface.

The estimated life of mine is nine years (assuming a 1,000 tpd operation and conversion of all resources into mineable reserves). The resource is open along strike and at depth.

Williams explains, "A lot of the historic mining terminated against the 'Great Crosscourse fault'...There is potential for multiple millions of tonnes of additional resource on the west (other) side of the fault. The drilling that we have in mind currently would test structures on the west side of the fault to demonstrate that the potential is real."


Strongbow recently closed the first tranche of a \$5M financing to be used to obtain surface planning consents, complete water treatment tests, de-water the mine and undertake a PEA. It also plans to list on the AIM Exchange to assist with financing, including raising \$5M for drilling. ■



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# West High Yield Resources planning magnesium mine

by Laura Barker

Junior exploration company, **West High Yield Resources Ltd.** [WHY-TSXV], is aiming to take its Record Ridge magnesium project into production. Discovered in 2007, the project is 7.5 km west-southwest of Rosland, southern British Columbia.

Frank Marasco, President and CEO, said, “We are in a pro-mining town, with full infrastructure in place. It will be an open pit [operation] and we are very happy with this discovery.”

WHY retains 100% of the mineral rights at Record Ridge, and are in the process of obtaining permits to surface rights. The serpentine-hosted magnesium deposit has been traced down to an average depth of 135 metres below surface and is open in all directions and at depth.

Marasco commented, “This thing is 7.5 km<sup>2</sup> and it’s a one rock unit that starts right at surface...This is just the tip.”

WHY established an NI 43-101 compliant resource in 2013 based on ~10,000 metres of drilling between 2007 and 2011 and, in 2015, obtained permits for extraction of a 10,000-tonne bulk sample.

Combined measured and indicated resources are ~43Mt averaging 24.6% Mg and, using a 21.9% cut-off grade, total magnesium oxide of 10.6 Mt.

The mine plan uses conventional open pit methods with production of approximately 1M tpy for a 42-year mine life. According to Marasco, “We are looking at two years from now to complete permitting. We are going to start off small – probably 2,900 tpd. In the big picture that is a very tiny operation, and a very nice setup.”

Magnesium’s primary use is as an alloy with aluminum. Due to its relative light weight (33% lighter than aluminum), a reduction in emissions may be indirectly attributed to its use as an alloy in the transport industry.

At Record Ridge, mineralization is


related to elevated magnesium content in serpentinized ultramafic rocks. Alternate magnesium sources include extraction of magnesium from magnesite, dolomite, carnelite, and brines. “Out of the five types, the lowest CO<sub>2</sub> emissions producer is magnesium serpentine (because) the host mineral is a silicate, not a carbonate,” said Marasco. “This makes us part of the new industrial green revolution and we should be proud of producing the product that will be making the world a better place by reducing CO<sub>2</sub> emissions.”

Thus far, WHY has received a letter of intent regarding future purchase of up to 100,000 tonnes annually of magnesium ingots for use in manufacturing of rail hopper cars. They are currently pursuing



financing (\$2 million) for extraction and processing of 10,000-tonne bulk samples.

Next steps for WHY include obtaining a mining permit and completing environmental assessment, environmental baseline and feasibility studies for which they are seeking \$3 million. They have engaged SRK consulting, Greenwood Environmental and Drinkard Metalox to start on their next phase.

The outlook for WHY, according to Marasco, is positive, “It’s been 13 years of no cash flow. In the last three years we went through a lot trying to [find] sources of funding. And not just us, the whole [mining] world – but we are starting to see a bit of action again in the mining industry, which is promising.” ■



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# Viscount Mining – Sumitomo cleared for Nevada drilling program

by Ellsworth Dickson

Viscount Mining Corp. [VML-TSXV; VLMGF-OTCQB] has received approval at Flint Canyon for new drill hole pad locations, sumps, and road construction under a Notice of Intent submitted to the Nevada Bureau of Land Management (BLM) earlier this spring. Flint Canyon is part of the 100%-owned Cherry Creek gold/silver project in White Pine County, Nevada.

Sumitomo Corp.'s US subsidiary, Colorado-based Summit Mining Exploration Inc., can earn a 75% interest in the 9,000-acre Cherry Creek property by producing a feasibility study and in addition by spending a minimum of US \$10,000,000 on exploration and development by the eighth anniversary of the earn-in agreement. The Cherry Creek property hosted more than 20 past-producing mines.

With this approval Viscount will have a 7,046-foot new road and go ahead with Phase I of the 2016 reverse circulation drilling program scheduled for early August. The program will consist of approximately 18 holes for 4,380 metres (14,366 feet) starting at Flint Canyon.

The 2015 mapping at Flint Canyon found the area to be much more complexly faulted than previously indicated on the Adair 1961 geologic base map. Summit's mapping program discovered that east-west orientated faults and fractures, which are important ore controlling structures at Cherry Creek's Ticup and Star Mines, also occur in the area. The Flint Canyon area features alteration and mineralization characteristic of the important Carlin-type gold deposits in east-central Nevada with one sample

grading 3.83 g/t gold.

Jasperoid occurrences in Nevada are significant with regards to Carlin-type gold deposits and mineralized jasperoid outcrops are common throughout the Flint Canyon area. Many major gold discoveries have been made based on the presence of outcropping, weakly mineralized jasperoid hosted in and along bedding contacts of carbonate rocks. At Flint Canyon, jasperoid is found in the same carbonate rocks that are prolific host rocks at nearby large gold deposits such as Newmont Mining-Long Canyon.

Jim MacKenzie, Viscount President and CEO, stated, "We are very excited that Phase I of this year's drill program is starting at the Flint Canyon area which exhibits alteration and mineralization characteristic of Carlin-type gold deposits."

In an interview with Kaare Foy, Chairman of Viscount Mining, I noted that it was unusual that a major would offer to prepare a feasibility study and spend US \$10 million on such an early stage property which prompted the question: Does this demonstrate the prospectivity of the project? "Yes, we believe so. There are 22 past-producing mines on the Cherry Creek property which we assembled, acquired and placed into Viscount Mining. This is the first time all of the ground is owned by one company."

Foy added, "When Sumitomo realized the property was under one banner they wanted to become involved. They contracted to spend between US \$35-40 million on the bankable feasibility study plus US \$10 million on exploration to earn the 75% interest."

Foy explained that after Sumitomo earns its interest, Viscount does not want to continue as a minority shareholder but would like to sell the property – not the company – to Sumitomo, as provided in the earn-in agreement. "Since we are a project generator, we would like to advance our other properties and eventually sell them too," he said.

Viscount Mining also has a 100% interest in the Silver Cliff property 44 miles west-southwest of Pueblo, Colorado comprised of 96 lode claims covering much of the historical past-producing mineral districts of Silver Cliff and Rosita Hills. High-grade silver, gold and base metal production came from numerous mines from 1878 to 1894.

Drilling in the 1980s by Tenneco resulted in a historical pre-feasibility study which formed the company's decision to put the property into production. Known historical silver grades range from below detection to a high of 2,125 g/t (68 oz/ton) silver over 13.4 metres. Known historical gold grades range from below detection to a high of 9.06 g/t (0.29 oz/ton) gold over 1.2 metres. Plans were halted due to the restructuring of Tenneco after it was sold.

Foy said that funds have been raised to drill the Silver Cliff property to bring it up to NI 43-101 standards. "We have a good idea of where to drill based on previous exploration results. Drilling is scheduled for August." ■

Drilling operations at the Cherry Creek gold/silver project in White Pine County, Nevada. Photo courtesy Viscount Mining Corp.



# Largo Resources to target vanadium battery market

by Peter Kennedy

Toronto-based **Largo Resources Ltd.** [LGO-TSX; LGORF-OTC] is moving quickly to establish itself as a rarity among TSX-listed mining stocks. Its strategic aim is to become a pure play on vanadium, a metal that has traditionally been tied to the fortunes of the steel industry, but is now being used in batteries and other high tech applications.

In keeping with that goal, the company recently announced that its 100%-owned, flagship Vanadio de Maracas Menchen Mine in Bahia, Brazil produced a record 801 tonnes of vanadium during June. That marked a 3% increase from May, which also set a new production record. The announcement is a key step for Largo as it moves to secure premium pricing for its vanadium production by selling to buyers in the aerospace and oil refining sectors.

Vanadium is primarily used as an alloy to strengthen steel and reduce its weight. But in an interview with Resource World, Largo President and CEO, Mark Smith, said the company is hoping to achieve a quality level in the production process that will allow its vanadium to be used in more advanced applications that will also include vanadium redox batteries.

These vanadium-driven batteries are alternatives to lithium-ion batteries and are used primarily in the longer-term, grid-scale storage of clean energy from solar and wind sources.

If the company is successful, Largo could represent a rare investment opportunity because it is the only primary producer of the vanadium in the Americas. The other major producers are located in China, Russia and South Africa where the metal is mined as a by-product of iron ore slag.

"As a basic resource company, we have the recipe for success here because we have arguably the best vanadium resource in the world," said Smith during a telephone

interview from Denver, Colorado.

In addition to his role as CEO of Largo, Smith is also Chairman and CEO of **Niocorp Developments Ltd.** [NB-TSX]. Niocorp's key asset is a niobium, scandium, titanium project in Nebraska. He previously served as CEO of US rare earths giant Molycorp, and was involved in taking the company public on the New York Stock Exchange in 2010.

Having joined Largo in March, 2015, he is overseeing the development of the Maracas Menchen Mine, site of a high-grade vanadium deposit with proven and probable reserves standing at 18.4 million tonnes, averaging 1.17% V<sub>2</sub>O<sub>5</sub> (vanadium pentoxide), a grade that Largo says is double the industry average. The project is estimated to contain an additional 54 million tonnes of material in the measured, indicated and inferred category.

With such rich material at its disposal, Largo hopes to operate a cost efficient mine that can withstand the impact of fluctuating prices, which dipped to a 12-year low of US \$2.40 a pound in December 2015, due to slowing demand from the Chinese steel industry. More recently, prices have rebounded to trade in the US \$3.30 to US \$3.50 range after jumping to around US \$4 in early June 2016.

Swiss metals mining-trading giant **Glencore PLC** [GLEN-London] is currently buying all of Largo's production under a six-year take or pay agreement.

Largo is working to achieve name plate capacity (9,600 tonnes) after lower than expected guidance and higher than forecast costs prompted Dundee Capital Markets analyst Joe Gallucci to drop his rating on the stock in December, 2015 to hold from buy. At that time the stock was trading at 24 cents, down from \$3.20 in early 2014. After sliding to 13 cents in February, the stock is now trading at 64

cents on July 28, 2016.

"Taking vanadium out of an ore matrix and converting it into the V<sub>2</sub>O<sub>5</sub> that we do is an extremely complicated process," Smith said. "It is truly chemical engineering and chemical processing."

Still, he believes the stars are aligning for his company. "The supply/demand side is fairly straight forward in that demand is doing just fine. I think it is safe to say that it is going to be the same or a little bit higher this year than last year," Smith said.

This optimistic view is based on the supply side of the equation. "Prices got so low for this commodity last year that it caused various operations around the world to go into bankruptcy, and or stop altogether," Smith said.

"A lot of these stoppages are permanent reductions at operations that went through bankruptcy and are actually in the liquidation process." By the end of this year, Smith estimates that upwards of 20,000 tonnes of production will be gone from the supply side of a sector that normally produces about 95,000 to 98,000 tonnes per year.

Meanwhile, with US \$16 million cash at the end March 2016, Largo may consider tapping the market for funding in the near future. "We will take advantage of opportunities as they arise," said Smith. "We really want to demonstrate to the world that we have an economically viable operation."

Largo recently signed a non-binding memorandum of understanding with Vionx Energy Corp., which develops, produces and sells vanadium redox flow batteries (VRBs) for utility grid applications. It is hoped discussions may lead to Largo supplying vanadium electrolyte to Vionx to further the research and development of advanced VRBs utilizing VNX grid energy storage systems. ■

# Maverix Metals

THE TIMING IS RIGHT – NEW EMERGING METAL STREAMER

by Andrew Nelson, Davidson & Company LLP

Resource focused royalty and streaming companies benefit from a superior business model in the mining industry offering above-average returns with reduced risk. Streamers enjoy asset diversity, fixed operating and capital costs, commodity price upside, exploration and development upside which all translate into reliable free cash flow and industry leading margins.

Just look the stream Silver Wheaton purchased from Lundin Mining in 2004 on the Zinkgruvan Mine in Sweden which entitles Silver Wheaton to purchase silver for US \$4.27/oz while the metal trades above US \$20/oz. For Silver Wheaton, this stream in 2015 alone brought in nearly US \$30 million from approximately 2 million silver ounces streamed.

Lundin Mining handsomely benefited from this transaction too, selling the stream for US \$78 million to Silver Wheaton while it paid US \$101 million to acquire Zinkgruvan from Rio Tinto in 2004. The deal was a win-win for both parties but due to the streaming business model, Silver Wheaton has returned 1,559% to shareholders from their 2004 IPO to the market close on July 6, 2016.

Streaming has become an attractive source of financing with over \$10 billion of streaming transactions completed in the past five years. Traditional mining companies have become increasingly receptive to streaming financings with deals in 2015 including, but not limited to Teck Resources, Glencore, and Yamana Gold.

Right now, former Pan American Silver President and CEO, Geoff Burns, and veteran investment banker, Daniel O’Flaherty, are looking to take advantage of the favourable timing in the space. The opportunity they see is the market valuing precious metals streaming companies at higher multiples when compared to traditional miners and developers.

Burns has over 30 years of experience in the precious metals mining industry and previously served as the President and CEO of Pan American from May 2004 until his retirement at the end of 2015. During his tenure, Pan American increased silver production from 7.5 million ounces to over 26 million ounces annually, to become the second largest primary silver producer in the world. During his career, he has led or been part of numerous capital market transactions raising in excess of \$1.2 billion in equity, debt and convertible debt.

O’Flaherty has over 10 years of investment banking and executive officer experience. He was a director in the investment banking team of Scotia Capital in Vancouver focused exclusively on metals and mining. Over the past ten years, O’Flaherty has



The processing plant at Pan American Silver’s La Colorada silver mine in Mexico. Photo courtesy Pan American Silver Corp.

been directly involved in more than \$20 billion of successful mining transactions, which has provided him with a network of key players in the industry. He also acts as a Director of Anthem United Inc., and prior to that was the Executive Vice President of Corporate Development of Esperanza Resources, which was sold to Alamos Gold for \$90 million in 2013.

In July, Maverix Metals completed a reverse take-over transaction to acquire a package of 13 royalties and precious metal streams from **Pan American Silver Corp.** [PAA-TSX; PAAS-NASDAQ] and **MacMillan Minerals**. The newly formed company will be headed by Burns, Chairman, and O’ Flaherty will act as President and CEO. Maverix Metals [MMX-TSXV] will be their investment vehicle, the newest precious metal streaming and royalty company.

Chairman Burns said “I am truly excited about the future prospects for Maverix. The portfolio of royalties and metal streams that has been assembled provides a solid, cash generating foundation to build upon. The timing is right and the vehicle is right.”

The company will immediately be cash flow positive from existing streams and royalties coupled with a healthy balance sheet with CDN \$5 million cash and no debt to pursue additional opportunities. Management believes the portfolio contains attractive leverage to both gold and silver prices from operating mines, and other royalties and streams on development stage assets in Mexico, Canada, Peru, and Argentina.

Key assets in the portfolio will include the La Colorada Mine gold stream which will provide 100% of the gold produced from Pan American’s operating La Colorada silver mine in Mexico, less a fixed price of US \$650/oz for the life of the mine.

The mine produced 2,630 ounces of by-product gold in 2015, and has production guidance of 2,700-2,900 gold ounces for 2016. The mine is currently undergoing a major US \$80 million expansion of both the mine and processing facilities, which are expected to increase gold production to over 4,000 ounces per year by 2018.

Maverix will enjoy a 1.5% NSR (net smelter royalty) on all metal sales from the Taviche Oeste concession at Fortuna Silver



# Maverix Metals will be immediately cash flow positive

Mines' operating San Jose silver and gold mine in Mexico. Fortuna currently expects operations to last approximately eight years. First production on the Taviche Oeste concession began in 2015 with the first NSR payment being made for the third quarter of 2015.

In Nova Scotia, Canada, the company has a 3% NSR, subject to a 2% buy-back for CDN \$2.5M, on Atlantic Gold's Touquoy deposit. Touquoy is part of the Moose River Project, an advanced stage, open pit development, gold project. Atlantic Gold is fully financed and has major permits in place for the Moose River Project with first production expected in late 2017.

Roscoe Postle Associates Inc. completed an independent valuation of the resource assets held in Maverix's portfolio using an after-tax discounted cash flow analysis and comparable transaction analysis which resulted in an estimate of the portfolio value between CDN \$52 to \$57 million, based on a consensus long term gold price of US \$1,201/oz.

After the arrangement has been finalized, 79,573,258 shares will be issued and outstanding with Pan American Silver owning 54% (42,850,000 shares), Burns owning 14.9% (11,792,417 shares) and O'Flaherty owning 7.87% (6,258,333 shares).

The streaming business model, although highly lucrative, does face risks, including project risk. Maverix has created a leadership group of technical and financial professionals, with the support of Pan American Silver, to mitigate this risk through diligent and disciplined asset selection. Through a prudent approach to investing in economic and low cost projects, shareholders can hopefully be rewarded with an early investment in what may become another streaming giant. ■

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# MINING

## Q-GOLD RESOURCES DRILLING PROMISING VMS TARGET

Q-Gold Resources [QGR-TSXV; QGLDF-OTC; QX-FSE] controls a diversified portfolio of prospective gold and silver properties, all of which are located in the politically stable and geologically desirable jurisdictions of Ontario, Canada and Arizona, US.

The company recently raised \$400,000 in a private placement. The money is earmarked for continued exploration of its flagship project the Green Mohave 2 claim near Crown King, Arizona.

Q-Gold began the initial phase of its 2,000-metre diamond drilling campaign in early June that is designed to test the highly-conductive geophysical "A" Anomaly. This prospective anomaly is hosted within the prolific ore-bearing Central Arizona Volcanic Belt (CAVB). The CAVB is an about a 5,400 km<sup>2</sup> area of volcanogenic massive sulfide (VMS) ore occurrences. The belt

contains 29 historic mines, many of which produced from the 1890s to the 1940s. The United Verde Mine and its extension is the largest of these mines having produced 3.7 billion pounds of copper at grades over 10%, 1.45 million oz gold and 56.5 million oz silver over its life-span.

Mineralization in the area generally consists of copper sulfide minerals as well as varying amounts of gold and silver. Anomaly A was discovered by an airborne (VTEM) survey and later further delineated by ground geophysics. The anomaly appears to represent a highly-conductive tabular body outlined near the surface that extends to a depth of over 400 metres. It has been traced along strike for 700 metres with a thickness of about 30 metres. A secondary conductive zone extends to a depth of about 425 metres and appears to be about 15 metres thick. A third conductive zone may be reflective of an oxide cap.

Q-Gold reports that the first 800-metre phase of the drill program will target the

upper and middle zones of the anomaly, the latter being the primary target, where both conductive and magnetic responses in the geophysical surveys were the strongest.

The company hopes that the upper zone of the geophysical anomaly represents a rich silver oxide zone. This is similar to what was found at two adjacent mines; the Peck and Silver Prince. If results warrant, the remaining 1,200 metres will begin to define the size of Anomaly A.

The company holds 12 other mining claims in the Peck Mining District near Crown King. Half of these claims host geophysical anomalies that are similar in nature but smaller than that found at the Green Mohave 2 claim.

In addition to its Arizona claims, Q-Gold has three other gold-silver projects in Ontario: the McKenzie Grey property which hosts a small non-NI 43-101 compliant gold-silver resource; the 26,000-acre Mine Center Gold Camp property and the Foley Mine, a turn of the century past producer. ■

## PAN AMERICAN DRILLING KOOTENAY'S PROMONTORIO-LA NEGRA PROSPECTS

Kootenay Silver Inc. [KTN-TSXV] reports that partner Pan American Silver Corp. [PAA-TSX; PAAS-NASDAQ] provided an update on exploration on the Promontorio-La Negra silver prospect, contained within the Promontorio Mineral Belt, Sonora, Mexico. A 3,400-metre diamond drilling program is underway and will consist of about 18 drill holes. The program will further test the La Negra Breccia and two additional targets.

James McDonald, President and CEO of Kootenay Silver, said, "We are very pleased with the results to date from Pan American's exploration activities on Promontorio-La Negra. The La Negra silver discovery is a premier exploration target that demonstrates excellent potential to evolve into a low-cost, open-pittable silver resource. We are excited the drill campaign on La Negra is underway and look forward to reporting results as they are received from the program."

### Promontorio - La Negra Silver Discovery

An updated measured and indicated resource at Promontorio contains an estimated 92,035,000 silver equivalent ounces with another 24,326,000 silver equivalent ounces categorized as inferred. The Promontorio deposit also hosts significant quantities of gold. Estimated measured and indicated gold resources contained within the mineralized diatreme system total 506,000 ounces with an additional 132,000 ounces inferred.

The La Negra Breccia prospect is situated approximately 6.5 km north of Kootenay's Promontorio silver resource and is contained within a 25 x 15 km mineralized corridor known as the Promontorio Mineral Belt. Initial exploration on La Negra included a successful trenching and surface sampling program that confirmed extensive silver mineralization over a large 100 to 200 metres by 500 metres area on surface.

A follow up Phase I drill program on La Negra returned significant and consistent intervals of high-grade, widespread silver mineralization extending from surface to depth, confirming a substantial new silver discovery.

Results from a Phase II drilling program on La Negra further confirmed the continuity of silver grades and the consistency of silver mineralization to depth within the core of the diatreme breccia. The program also further reinforced La Negra's future potential as a low-cost, open pittable silver resource. Development of La Negra is currently under an option agreement with Pan American Silver

Pan American can earn a 75% interest Kootenay Silver's Promontorio Mineral Belt silver properties, including the Promontorio and La Negra deposits, by paying US \$8,050,000 over four years and spending US \$8,000,000 on exploration. Pan American invested CDN \$2,000,000 in Kootenay by subscribing for 9,090,909 Kootenay shares at CDN \$0.22 per share.

Kootenay Silver began drilling its 100%-owned La Cigarra silver project in Chihuahua. The program is designed to test the RAM target and to expand La Cigarra's resource by targeting continuity of high-grade trends recently identified within the resource. ■

## Dominion Diamond to develop Jay diamond project

Based on a positive feasibility study, revised project schedule and life-of-mine plan, **Dominion Diamond Corp.** [DDC-TSX, NYSE] will go ahead with the development of the Jay diamond project about 300 km northeast of Yellowknife, Northwest Territories. The company has an 88.9% interest in the Ekati Mine and an indirect 40% interest in the nearby Diavik Mine (**Rio Tinto plc** 60% [RIO-NYSE, ASX, London]).

The Jay Project is within the 58.8%-owned nearby Buffer Zone joint venture property. The base-case post-tax net present value at 100% share is \$398 million with an internal rate of return of 15.6%. At Dominion's share of both the Buffer Zone and 80%-owned Core Zone joint ventures, the project base-case, post-tax NPV is \$278-million with an IRR of 16.7%. Jay will be able to use existing Ekati Mine infrastructure and has total development capital cost of \$647 million. Development is expected to be financed from existing cash and internal cash flow. This will extend mine life to calendar 2033 and will open up further development opportunities.

Diamond processing will begin in calendar 2022, which positions the project well to take advantage of a favourable supply-demand outlook for diamonds, particularly in the lower price segment.

Brendan Bell, CEO, stated, "The Jay feasibility study has confirmed the economic and technical viability of the large-scale, high-grade Jay Project, which is the most significant undeveloped deposit at the Ekati Mine. With a revised project schedule and updated mine plan, this positive feasibility study sets out a clear long-term plan for Ekati. We are very confident in the outlook for the diamond market and believe the mine life extension, provided by Jay, positions us well for the future. While work remains in order to complete project permitting, and to identify optimization and

cost-reduction opportunities as we build Jay, we are very pleased with the results."

Dominion Diamond recently ran a successful production trial for the Misery Main kimberlite, part of the Ekati Mine complex, resulting in the recovery of approximately 130,000 carats. The stones were sorted and valued with the company's average market price estimated at \$72 per carat, which includes the impact of the company's strategy for liberation of additional small diamonds. The Misery

Main hosts the highest value ore body on the Ekati property.

On June 23, there was a fire at the Ekati process plant. It is estimated that repairs will take about three months from the date of the fire with the cost of repairs to be approximately CDN \$25 million. Operating costs are being reduced and some capital costs will be deferred during the plant downtime. Mining continues at the higher value Misery open pit and Koala underground with Pigeon and Lynx mining suspended. ■

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NORTHWEST TERRITORIES MINERALS AND PETROLEUM

# Cobalt: a critical commodity

by Troy Nazarewicz

Energy-related metals, specifically lithium, have been attracting market attention in recent months as the lithium-ion battery market expands due to developments in the electric vehicle and stationary storage markets. The specialty metal cobalt is also critical for the production of lithium-ion batteries.

In fact, 50% of the world's cobalt demand is for its use in rechargeable batteries. Cobalt is facing the same demand pressures as lithium but has different supply characteristics. Cobalt is primarily a by-product of copper and nickel mining and, as the price of these metals has declined, a number of mines have been idled resulting in reduced cobalt production at a time when demand for cobalt is growing rapidly. Market analyst company, CRU, and other sources are calling for cobalt to enter a deficit position later this year.

The cobalt market has had compound annual growth of approximately 5-6% for the past two decades and in 2015 grew by 5.4%, more than double recent global GDP growth of 2.4% for the same period. Market growth has been driven primarily from the demand for cobalt in chemicals used to make lithium-ion rechargeable batteries needed to power portable electronic devices, electric vehicles and stationary storage cells. Battery chemical demand increased nearly 12% in 2015 and now accounts for approximately half of the world's annual cobalt production. Double digit growth of cobalt used in rechargeable batteries is expected to continue for the foreseeable future.

Supporting the positive outlook for cobalt, Tesla Motors made automotive history on March 31, 2016 with the launch of its Model 3 electric vehicle, receiving US \$325 million in deposits for 325,000 preorders of these cars in the first week (now ~400,000 orders). If these orders are



The Idaho Cobalt Project mill and concentrator pads, tailings waste storage facility and water management ponds' earthworks. Photo courtesy Formation Metals Inc.

converted into annual sales, production of the Tesla Model 3 would be comparable to the top selling vehicles in North America. Mainstream interest in electric vehicles has been validated by thousands of people lining up to make a US \$1,000 down payment for a car that will only be available in late 2017.

The market for cobalt last year totaled ~110,000 tonnes. Knowledgeable analysts are projecting a supply deficit of ~1,600 tonnes in 2016 due to increased demand. This excludes 6,500 tonnes of annual production recently shuttered as a result of the closure of Katanga (Congo), Mopani (Zambia), Queensland Nickel (Australia) and Votorantim (Brazil).

There are also rumors that Minara, Koniambo and Goro could potentially be shut down as well (~7,000 tonnes of cobalt production). These mines are being shuttered due to the low primary nickel and copper metal prices – not because of cobalt, which is produced as a by-product.

Future risks to cobalt supply are further

exacerbated by geographic concentration of supply and 65% of mine production currently sourced from the DRC, as noted above, a politically unstable country, and 52% of refinery production in China, a country with policy risk. These risks were recently addressed in the Assessment of Critical Minerals report to the U.S. Congress that identified cobalt as a critical mineral on a list that “have a supply chain that is vulnerable to disruption, and that serve an essential function in the manufacture of a product, the absence of which would cause significant economic or security consequences”. The Report to Congress is at: [https://www.whitehouse.gov/sites/default/files/microsites/ostp/NSTC/csmsc\\_assessment\\_of\\_critical\\_minerals\\_report\\_2016-03-16\\_final.pdf](https://www.whitehouse.gov/sites/default/files/microsites/ostp/NSTC/csmsc_assessment_of_critical_minerals_report_2016-03-16_final.pdf)

China Moly's recent acquisition of the Tenke Mine in DRC has the potential to further concentrate cobalt refining. ■

*Troy N Nazarewicz, CIM, CPIR, is Investor Relations Manager at Fortune Minerals Limited.*

**FORTUNE MINERALS: NICO PROJECT**

Fortune Minerals Ltd. [FT-TSX; FTMDF-OTCQX] is developing the NICO Project that is preparing to become a vertically integrated Canadian source of battery-grade cobalt chemicals with supply-chain custody transparency. The NICO gold-cobalt-bismuth-copper development is comprised of a planned mine and concentrator in Canada's Northwest Territories and a refinery near Saskatoon, Saskatchewan to process concentrates from the mine to higher value products.

The project has a positive feasibility study and has received its environmental assessment approvals in the Northwest Territories and Saskatchewan. It is an essentially shovel-ready project. The NICO deposit mineral reserves will support a 21-year mine life at a mill feed rate of 4,650 tonnes of ore/day to produce 180 wet tonnes of concentrate/day for shipment to the refinery.

Life-of-mine average annual production is projected to be 41,300 ounces of gold, 1,615 tonnes of cobalt contained in a battery grade cobalt sulphate heptahydrate, 1,750 tonnes of bismuth contained in ingots, needles and oxide, and 265 tonnes of copper.

NICO is well positioned to become a reliable North American source of battery grade cobalt chemicals with supply chain custody transparency and tax advantages under the North American Free Trade Agreement (NAFTA). Earlier in 2016, an ultra-pure cobalt sulphate sample was delivered from an earlier pilot plant for testing by a potential customer. Discussions for offtake agreements and project financing are ongoing.

**FORMATION METALS: IDAHO COBALT PROJECT**

Formation Metals Inc. [FCO-TSX; FMETF] is a well-established Canadian mineral exploration and mine development company focused on cobalt production in Idaho, US. The company's flagship property is its wholly-owned Idaho Cobalt Project (ICP), North America's only near term, environmentally-permitted, primary

cobalt deposit.

The ICP is also slated to produce by-product copper and gold. Formation's main objective is advancing the project to production in order to provide North American consumers with ethically sourced and responsibly mined, battery-grade, cobalt chemicals for use in the booming rechargeable battery sector.

In April 2015, Formation Metals completed a positive Preliminary Economic Assessment on the Idaho Cobalt Project. In March 2016, Formation received the final metallurgical report on bench test production of cobalt sulphate heptahydrate from ore samples from the ICP demonstrating it can successfully produce high purity, battery grade, cobalt sulfate from the project.

Early in June of this year, Formation announced the successful conclusion of an oversubscribed \$4.4M financing with the intent to use the proceeds to fund a bankable feasibility study and for general working capital purposes.

Later that month, the company announced the awarding of the Feasibility Study contract to Micon Engineering and SNC-Lavalin with an expected completion date in Q1 2017. This feasibility study will form the basis to secure mine capex financing to re-commence construction on its cobalt project.

**CRUZ CAPITAL ACQUIRING COBALT PROJECTS**

Cruz Capital Corp. [CUZ-TSXV; BKTPF-OTC; A2AG5M-Germany] is actively acquiring cobalt exploration projects. James Nelson, President, says, "Cruz is aiming to be North America's premier cobalt project generator and developer. We have identified a number of under developed cobalt prospects that have some kind of historic cobalt showings that would be considered above average. Being first movers in the space has enabled Cruz to identify and secure many high prior-

*continued on page 65*



**CUZ-TSXv**  
**BKTPF-USA**  
**A2AG5M-Germany**

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- Cruz has seven separate Cobalt assets in Canada; four are located in Ontario and three are in British Columbia.
- Cruz only has 8,075,000 shares outstanding giving the company a very tight structure.
- Cruz's goal is to develop in house or joint venture these Cobalt assets.
- "...cobalt metal prices have been rising in recent weeks on the positive sentiment created by strong forward demand from the super-alloys sector as well as the anticipation of higher prices that has resulted from an expected surge in production of electric vehicles." The cobalt price has recently traded to a six month high.

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## Industrial Fabrication: purpose built mining equipment

by Kathrine Moore

In the mining industry, new, innovative technology is often first adopted by repurposing vehicles and equipment. Industrial Fabrication, a privately owned Canadian corporation, headquartered in Sudbury, Ontario, specializes in building utility vehicles for miners that are tough enough for underground environments.

One of Industrial Fabrication's mine proven products is the MINECAT® 100. Peter Villgren, Vice President of Industrial Fabrication, told *Resource World*, "The MINECAT® 100 is a purpose built vehicle made to be used underground. Some equipment dealers will take a built vehicle and modify them so they can go underground". The MINECAT® 100 is not a repurposed vehicle. They were built for the mining industry to meet the unique challenges mining vehicles tackle daily.

The company explains that the major components of the MINECAT® 100 "have at least double the life of competitive machines which tend to use components designed more towards agricultural purposes." The machine is built to offer the mine operator a "proven low cost, durable vehicle that meets the demands of modern mining".

Industrial Fabrication uses solid model drafting software to design and customize equipment. The company's team has years of experience designing various types of mobile equipment and hydraulic machinery for the mining industry and has a sound knowledge of mechanical, hydraulic and electrical design as well as low voltage electrical design. The company "streamlines the design process by using the latest design software available."

One of the features of the MINECAT® 100 is that it can be configured to serve practically any purpose a client may have. The

### SOME OF THE AVAILABLE CONFIGURATION:

- Service Vehicle
- Personnel Carriers
- Backhoe
- Aerial Boom
- Forklift
- Loader
- Scissor Lifts
- Cab Vehicle – covered vehicle
- Anfo Loader – loads a blasting agent known as ANFO into drill holes
- Lube Vehicle – with capacity to carry anti-freeze, transmission fluid, engine oil, hydraulic oil and fuel with reels and nozzles
- Cable Reeler
- Emulsion Loader – an emulsion explosives vehicle, with loading equipment and front end lift forks
- ROPS/FOPS – Roll-Over Protection Structure & Falling Object Protective Structure
- Shotcreter – sprays mortar or concrete through a hose and nozzle onto a surface.

vehicles' frame is modular which allows it to be easily adapted and fitted with a variety of attachments complete with certified ROPS/FOPS canopies that are available on all units. The company manufactures the ladder type steel frames that can support heavy duty components.

Villgren said, "We have been building them for 14 years and over time it has evolved; we have developed dozens of different configurations." The variable displacement hydraulic pump provides power to a variety of different attachments.

Villgren told *Resource World* that the MINECAT 100's strength, as a mining vehicle, is in its axle, transmission and engine.

Minecat's Face Prep Minecat used for working at the face. It is capable of working 7 x 7 metre face. Photo courtesy of Industrial Fabrication.



The first purpose built, hard rock mining, electric vehicle, the MINECAT UT150-eMV®. Photo courtesy of Industrial Fabrication.



Villgren said “the MINECAT 100 is a heavy duty vehicle made specifically for the harsh underground environment. We have units with over 22,000 hours in service that are still running today.”

- The powerful turbo-charged, 4-cylinder Iveco engine gives you the reliability you need while meeting or exceeding underground emissions standards. This engine is both MSHA and Canmet approved.
- The HD clutchless, fully synchronized, 4x4 gearbox, transmission and torque converter allows for increased ease of operation and safety in ramped environments.
- The front axle and rear axle uses fully enclosed wet disks and industry standard SAHR-type braking systems, guaranteeing improved safety and reliability.
- The heavy-duty rear axle has 16,860 lb dynamic load capacity uses fully enclosed wet disks and industry standard SAHR-type braking systems.
- Ergonomically positioned operator’s compartment with easy to read gauges, mine-rated Bostrich fire-resistant wiring makes the MINECAT a safe, reliable, and easy drive.

The company also recently announced an industry first - the first purpose built, hard rock mining, electric mine vehicle.

Industrial Fabrication states that, “The MINECAT UT150-eMV<sup>®</sup>,

Electric Mining Vehicle is the safest underground utility vehicle in the industry. The running gear is the same as its diesel UT 99 counterpart, using proven industrial axles with fully enclosed fail safe wet disc brakes. The mining grade suspension features heavy duty gas shocks and springs, providing the operator and passengers with a smooth ride in the roughest of conditions.”

The MINECAT Electric Drive System consists of an ultra-efficient PMAC brushless traction motor for superior performance. Motors and controller are sealed to an IP67 rating allowing the UT150-eMV<sup>®</sup> to safely operate in the most severe mine conditions.

The battery pack uses recyclable lithium iron phosphate cells. The battery assembly resides under the hood in place of the diesel engine and the onboard charger goes in place of the fuel tank. Industrial Fabrication Inc. has recently developed and tested a scaled-up battery pack with a 40% increase in range.

The truck performs as well as its predecessor. “The diesel UT99 and electric UT150-EMV<sup>®</sup> weigh the same and have the same rear cargo space. This allows customers to take advantage of Industrial Fabrication’s library of mine proven configurations. The main difference between of the UT150-eMV<sup>®</sup> is that the electric drivetrain produces ZERO emissions.”

Villgren told *Resource World*, “In the last 24 months, the UT150-eMV units have travelled tens of thousands of kilometres on underground hardrock mines ramps with zero mechanical breakdowns.” ■

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## WipWare's Solo system: innovative on site material monitoring and analyses

by Kathrine Moore

**A**t many mine sites, after material has been crushed it is transferred to a conveyor belt to be transported to a mill for further processing. Controlling the size of the material feeding the mill and monitoring crusher efficiency is necessary to optimizing the mill process and to maximizing metal recovery. Conventionally, in order to monitor and control the size of mill feed, the conveyor belt is stopped; samples are pulled and analyzed. Not only does this interrupt the flow of mill feed, it might be a day or so before the lab results are completed.

The founders of WipWare helped invent the photoanalysis software algorithms 30

years ago in tandem with the University of Waterloo (Hence the Wip in WipWare: Waterloo Image Process).

The company's flagship product, Solo, is a completely automated analysis instrument for measuring the size distribution, volume and contamination of material, outputting results instantly and providing continuous monitoring of material.

The system works by continuously capturing images of material as it passes by the system's cameras set up along conveyor belts. WipWare is able to delineate the particles inside the images, and measure the size of the material instantly. Depending

on the application, WipWare's systems are capable of taking up to four images per second.

In business commercially since 1995, WipWare has experience installing its technology in some of the harshest industrial environments on the planet. Data gathered by the automated system is used for historical reference or direct control.

"The latest generation of Solo adds the ability to provide volume statistics (when combined with a belt weightometer) and detect contamination. Results can be accessed remotely through desktop computer or at your fingertips with an iOS



LEFT: WipWare's Generation 4 Solo system installed on a conveyor belt. Photo courtesy of WipWare Inc.

BOTTOM: Solo is a completely automated analysis instrument for measuring the size distribution of unconsolidated material on conveyor belts in real time without disrupting production. Photo courtesy of WipWare Inc.

device." WipWare software is available for Windows.

The system is fully autonomous. Once the system is installed, no user-intervention is required. WipWare's automated technology is able to automatically output results to a mine's historian or control room configuration, and can trigger alarms or automated email alerts if material is out of spec.

The company states that the system can improve SAG throughput, evaluate crusher performance, detect broken screens, and discover contamination. The system detects contamination by using advanced shade detection calculations. WipWare is able to identify potential issues while the material is passing.

WipWare designs and manufactures industry leading photoanalysis software and hardware that offers real-time analysis of materials in the field, laboratory, on-line production settings for underground and surface mining, quarries, aggregate production, forestry, coal industries.

WipWare offers stationary and mobile systems for conveyors, haulage trucks and site-specific locations. WipWare's Photoanalysis systems have helped companies world-wide save millions of dollars by preventing equipment down-time, improving productivity, enhancing personnel health and safety and optimizing processes.

The company states that their automated fragmentation photo analysis system is being used at Lafarge's Ravena quarry as a part of their ongoing drill, blast and primary crushing continuous process. WipWare's Reflex system at the Lafarge quarry has been a useful tool for monitoring and collecting raw data that is utilized to evaluate drill and blast performance. One of the examples of the measured gains achieved there, using WipWare's Reflex system as a blast/crush improvement toll, is a 20% increase in crusher productivity and a 12% reduction in crushed product cost with no change in drill and blast cost.

WipWare has just launched the GIS enabled version of its software, allowing operations to use drone images to help identify areas requiring improvement in blasting. ■

## Phoenix Extreme Conveyor Belt Solutions

by Kathrine Moore

**Phoenix Conveyor Belts**, headquartered in Hamburg, Germany, is an international company with over 150 years' experience building mining equipment; it has been developing and fabricating steel-cord conveyor belts for more than 60 years. The company's systems hold several world records for conveyor belting including the longest belt and the strongest belts.

The World's longest conveyor belt is in a vast plain in northeast Bangladesh at the Lafarge Surma cement factory. As the factory does not have its own source of limestone, the raw material must be sourced from a mine in India several kilometres to the north of the factory.

Both countries came to a unique and unprecedented cross-border agreement that ensured a stable, ongoing limestone supply. Since transport by road or rail was not a viable option due to geography, extreme weather conditions and other environmental factors, it was decided, in 2000, to build a 17-km long conveyor, supported on a trestles, from the mine to the plant through extremely difficult terrain.

The belt designed by Phoenix for this single flight conveyor is nearly 35 km long making it the longest conveyor belt in the world. It only has two drives, each at head (two motors) and tail (one motor), and no intermediate drives.

The world's strongest aboveground conveyor belt is in operation at the Los Pelambres copper mine in Chile. Ore from the mine, located in the Andes at an elevation of 3,200 metres, is transported by conveyor to the mill 1,300 metres below. The Phoenix St 7800 from Phoenix Conveyor Belt System conveys some 8,700 tons of copper ore an hour from the mine to the processing facilities 13 km away.

The Phoenix St 7800 has a breaking force of 8,500 Newtons per millimetre belt width. But what good is the best belt if the splices do not hold up? For that reason, the belt is also equipped with the world's strongest and longest splices which can withstand the same loads as the belt. Supplier Caucho Técnica fabricated the 78 splices in 100 days, assisted by Phoenix installation engineers.

The world's strongest underground conveyor belt in use is a Phoenix St 7500. The 8,000-metre-long steel cable conveyor belt from Phoenix Conveyor Belt Systems is used in the Prosper II coal mine in Bottrop, Germany. The company states that this belt is unique not only because of its breaking load but also because it conveys material simultaneously on both sides and in both directions. It transports the coal to the surface from a depth of 800 metres while at the same time returning stones that remain from the washing process back



## ARC Resources producing 10,000 barrels/day in northeast BC

British Columbians seeking a little good news in the oil patch don't have to look farther than the northeast. And this time they'd be looking at oil, not the natural gas staple that has fueled the BC economy – at least until recently.

While the experts have debated the viability of the proposed liquefied natural gas (LNG) projects that have grabbed headlines for years, oil is surfacing with the potential to make the northeast a significant oil producer.

Leading the rush is Calgary-based **ARC Resources Ltd.** [ARX-TSX] with wells drilled in the Tower region midway between Dawson Creek and Fort St. John, British Columbia which have the province's crude production on track to hit the highest levels in a decade.

With other companies in the area, such as **Tourmaline Oil Corp.** [TOU-TSX] and **Crew Energy Inc.** [CR-TSX], ready to join in, oil could soon be more of a player in an economy whose natural gas staple has suffered in recent years.

That may benefit a province growing weary of BC Premier Christy Clark's 2013 election campaign claims that several LNG plants worth \$30-plus billion each would be online by 2017, producing billions of tonnes of LNG, creating 100,000 jobs, wiping out the provincial debt and creating a \$100 billion 'prosperity fund'.

But while up to 19 companies have explored their LNG options, none have put shovels in the ground and Clark could be left 'holding the bag' of empty promises in next year's provincial election – largely due to sagging prices and ramped-up competition in the LNG sector.

But on the positive side, BC's daily crude oil production is at a nine-year high and

is expected to steadily increase, thanks in large part to the work ARC is doing in the northeast, which is seeing 60 wells producing 10,000 barrels of light oil a day.

"We're pretty happy with it," said ARC vice-president of capital markets David Carey. "To go from zero to 10,000 barrels a day in just four years, that's significant."

That makes up 25% of the company's oil production.

Producers drilling gas wells knew oil was there, at 1,600-2,400 metres, but they couldn't get at it without refining their horizontal drilling and well-fracturing techniques to target the oil and break up the tight rock so it would flow into a well.

While it was a new concept for plays in the Montney area, ARC went after the oil when their geoscience identified the area as liquids rich. They started by acquiring Storm Energy in 2010 after that company had drilled a vertical well and swabbed oil but couldn't get it to flow.

In 2012, ARC drilled a horizontal well there to see if it could flow oil and that was successful, albeit with a low flow rate, so they kept making improvements in the completion technology.

"It's very, very light sweet oil," Carey said, "and very high quality, which is good."

That plus the relatively low cost of production, works well with current crude prices now hovering around US \$41 a barrel. The company can break even with prices as low as \$30.

"It's hard to say how significant this is, because the geology varies rapidly up there. So it's hard to say where this can go," said Carey.

In the near future, ARC will focus on monitoring the wells that are in produc-

tion, plus drilling more, said Carey.

"We want to see if we can extend the production," he said, adding that the present infrastructure, including a connection to a Pembina pipeline and a gas plant at Parkland, is sufficient to their needs.

"At this point, more is under consideration but we're being cautious. We don't want to overcapitalize."

ARC estimates that it has about 9.7 billion barrels of light oil in place on its Tower lands, though only a fraction of that is likely recoverable. It's a "very good" play, Carey added, but not one that's likely to result in BC rivaling Alberta or Saskatchewan as Canada's chief oil producers.

The Montney underground formation features several stacked layers – some containing mostly dry natural gas or natural gas liquids, and some that are predominantly oil. The pool of oil extends about 100 km from east to west.

BC oil production peaked at about 100,000 barrels a day in 1998 – still a fraction of Canada's total production of more than four million barrels daily – but it has fallen off since then as fields became depleted and investment dried up.

Oil wells don't qualify for government royalty credits worth \$1 million to producers spending about \$2.2 million per natural gas well in certain areas in northeastern BC. But that could change. Some analysts think the developing potential for oil resource development could bring with it some incentives from government that could include royalty credits to encourage more drilling.

Much will depend on the price of oil; if it goes up, watch for more companies to give northeastern BC a look. ■

# AltaGas signs British Columbia propane MOU

by Bruce Lantz

Officials at Calgary's AltaGas Ltd. [ALA-TSX] are confident an agreement with a major customer for its liquefied petroleum gas (LPG) signals good times ahead. An MOU between AltaGas's wholly-owned subsidiary, AltaGas LPG Limited Partnership, and Astomos Energy Corp. outlines Astomos' commitment to purchase at least 50% of the 1.2 million tonnes of propane to be shipped annually from an AltaGas export terminal proposed for Ridley Island, near Prince Rupert, off British Columbia's northwest coast.

"This confirms our thesis that there's an appetite for propane from Asian buyers," said John Lowe, Executive Vice-President of AltaGas. "They see this as a great opportunity to diversify their supply, and for us it confirms the market demand."

The Ridley Island propane export terminal, expected to cost \$400-\$500 million, will be Canada's first.

"This export terminal is one of the key building blocks of our strategy to build out natural gas processing and liquids separation capacity in the Montney formation, a leading North American gas play," said AltaGas President and CEO David Harris in a press release. "The additional processing capacity we are building and connectivity to the export terminal provides upstream energy producers with unparalleled access at the most competitive rates to these premium markets."

The agreement is good news for the energy sector in northeast British Columbia, which has struggled of late as liquefied natural gas (LNG) proposals have stalled.

"Market diversity, including global markets outside Canada, is a key step forward for Canadian producers," said Harris. "We look forward to working closely with

Astomos, one of the largest LPG players in the world, and with producers to maximize their profitability."

Astomos, a joint venture between Idemitsu Kosan Ltd. and Mitsubishi Corporation established in 2006, is one of the largest LPG players in the world, handling more than 10 million tonnes of LPG annually. The company currently operates a fleet of 21 Very Large Gas Carriers that support its importing, distribution and international trading businesses. It has significant market share across Asia, where the product is used for both household and industrial purposes.

"This is a bright light in an environment which has had its challenges," said Lowe. "We have a fantastic site, a new market and a living, breathing purchaser."

AltaGas has begun the formal environmental review process for the terminal, on a brownfield site with a history of industrial development.

"We're continuing to work through the federal regulatory process and with area First Nations," said Lowe, adding that the company expects to make a final investment decision by year's end.

The site is being leased by AltaGas from Ridley Terminals Inc. (RTI) and is connected to Canadian National's existing rail network and AltaGas processing plants. It includes rights to an existing world-class marine jetty with deepwater access to the Pacific Ocean. RTI leases the land from the Prince Rupert Port Authority.

Preliminary engineering has been completed, and the front-end engineering and design study is underway. They expect to begin commercial operations in 2018.

AltaGas owns natural gas processing facilities in BC and Alberta that include the production of LPG. AltaGas is part owner and operator of a similar LPG export terminal in Ferndale, WA. ■

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## Hunt Mining Prepares for Production

SANTA CRUZ, ARGENTINA – Hunt Mining's President & CEO, Tim Hunt announced plans to commence operations at the Martha Mine in Q4 2016. "Recommissioning of the facilities at the Martha Mine are underway. We are excited to transition from exploration and development to becoming Argentina's newest silver & gold producer! The acquisition of Martha and its mechanical infrastructure make it possible for our company to work with the mining authorities and local communities to build a bright future in Santa Cruz."

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# GREEN TECHNOLOGIES



## Developments in Green Technology

by Jane Bratun

### INTRODUCING OUR NEW NAME

Green Technologies encompasses an evolving group of methods and materials, from techniques for generating energy, to non-toxic cleaning products. The goals that inform developments include: sustainability (meeting society's needs in ways that can continue indefinitely into the future without damaging or depleting natural resources), cradle to cradle design (ending the cradle to grave cycle of manufactured products by creating products that can be fully reclaimed or re-used), source reduction (reducing waste and pollution by changing patterns of production and consumption), innovations, and viability (creating a center of economic activity around technologies and products that benefit the environment, speeding their implementation and creating new careers that truly protect the planet). We hope you find our articles on green technology interesting and informative.

### NEW PRODUCTS HELP OEM'S BUILD LITHIUM-ION BATTERY SYSTEMS

In May 2016, **Electrovaya Inc.** [EFL-TSX] announced two new products: the LITACORE1000, and the EV4823, as building blocks for lithium-ion battery systems. "The 1 kilowatt hour (kWh) LITACORE1000 and 2.3 kWh EV4823 intelligent modules are now available to OEMs (Original Equipment Manufacturers) in Europe, North America and elsewhere, where the market demands highest safety and lowest holistic lithium-ion costs," says Dr. Rajshekar Das Gupta, Vice President Business Development, Electrovaya. "These

products enable OEMs to seamlessly use them as building blocks for lithium-ion battery systems for diverse electric vehicle and energy storage markets and usage will rapidly grow later this year, as these products are qualified by increasing numbers of OEMs," says Dr. Das Gupta.

Electrovaya, through its wholly-owned subsidiary, Litarion GmbH, also produces cells, electrodes and SEPARION® ceramic separators (flexible ceramic membranes that separate batteries in large-format lithium-ion cells). Matched to the active electrochemical cell components, LITARION® electrodes and customized electrolyte formulations, SEPARION® is the enabling technology for high performance lithium-ion battery systems for automotive applications and a key to success in full electric and hybrid vehicles.

In mid-June, Electrovaya signed a Letter of Intent with a major residential energy storage provider for delivery of lithium-ion battery modules for residential energy storage worth \$288 million. Headquartered in Mississauga, Ontario, with US headquarters in Saratoga County, New York, Electrovaya became a public company in November 2000. Electrovaya has production facilities in Canada and Germany.

### PROVIDING ENERGY FROM HYDROGEN

**Hydrogenics** [HYG-TSX], with headquarters in Mississauga, Ontario and with manufacturing facilities in Germany and Belgium, designs, manufactures, builds and installs industrial and commercial hydrogen systems. Applications include hydrogen generators for industrial pro-

cesses and fueling stations, hydrogen fuel cells for electric vehicles such as urban transit buses, commercial fleets, utility vehicles and electric lift trucks, fuel cell installations for freestanding electrical power plants and UPS systems (uninterruptible power supply).

As noted on the Hydrogenics website, the periodic table of elements starts with hydrogen. Although it is the oldest and most common element in our universe, pure hydrogen is not a natural resource. All hydrogen on earth is stored in a compound with other molecules. Water, essential for all life processes surrounding us, consists of 66% hydrogen. Water is a very stable element, from which hydrogen can be extracted using an electrolysis process.

Electrolysis requires electrical energy input. However, because hydrogen is an energetic fuel, the resulting energy produced is almost equal to initial energy input. The only product of this hydrogen combustion is water. Like any other fuel, hydrogen can be stored and used for combustion and can serve many purposes. Thanks to its high energy density, hydrogen is the ideal gas to store renewable energy overcapacity for seconds, minutes, weeks or months giving us the possibility of 100% green energy supply. This stored hydrogen can also be used to run fuel cell cars, which are simply recombining hydrogen and oxygen, creating a flow of electrons and electricity that will be used to run an electric engine. You could drive your car indefinitely just by refueling it at a station for five minutes like a normal gasoline car, but only emitting water vapor.



# GREEN TECHNOLOGIES

Hydrogenics is pioneering Power-to-Gas – an energy conversion and storage solution using electrolysis. It integrates renewable sources of generation, converts surplus electricity to produce hydrogen or renewable gas, and leverages the attributes of the existing natural gas infrastructure.

Power-to-Gas is a highly effective way of integrating renewables. It can provide a rapid, dynamic response to the Independent Grid Operator's signal to adjust to the variations in renewable generation output. A Power-to-Gas facility is not restricted to any geologic formation because it can be deployed wherever the power and gas grids intersect. It is a scalable technology.

Power-to-Gas provides the energy storage capacity in the terawatt hour range for seasonal storage capability. It can charge energy several days, or even consecutive weeks, without needing to discharge the stored energy. Unlike other energy storage technologies, Power-to-Gas provides the means to both store and transport energy. By storing hydrogen or substitute natural gas in the natural gas pipeline network and associated underground storage facilities, the stored energy can be discharged where and when it is needed most which results in a higher overall integrated system efficiency.

## RENEWABLE ENERGY POWER PLANTS DEVELOP WORLDWIDE

**Alterra Power Corp.** [AXY-TSX] is a renewable energy company, operating six power plants totaling 757 megawatt (MW) of generation capacity including the Shannon wind project, British Columbia's largest run-of-river hydro facility and largest wind farm, and two geothermal facilities in Iceland. Alterra owns a 349-MW share of this capacity, generating over 1,600 gigawatt hours (GWh) of clean power annually. Alterra is also constructing the 62-MW Jimmie Creek run-of-river

hydroelectric project in British Columbia, which is expected to be in operation by Q3 2016 (51% owned by Alterra). Upon completion of Jimmie Creek, Alterra will operate seven power plants totaling 819 MW of capacity and will own a 381 MW share of this capacity, generating over 1,700 GWh of clean power annually.

Geothermal projects are located in Iceland, Peru, Chile, Italy and British Columbia, though, in North America, projects focus on wind and hydro. Alterra's two geothermal plants in Iceland produce a total capacity of 172 MWs and a 23-MW-capacity facility in Soda Lake near Reno, Nevada. It owns the latter outright and the former with Icelandic pension funds.

In April 26, 2016, Alterra Power's Icelandic subsidiary, HS Orka, announced details of a 5,000-metre deep drilling program at its 100-MW Reykjanes geothermal power plant. The deep drilling project is designed to test for high energy geothermal resources below HS Orka's Reykjanes geothermal power plant. The hole is expected to be one of the deepest geothermal holes drilled to date in Iceland, with expected temperatures in excess of 500°C and exceptional power production potential. If the well is successful, the resulting power will be harnessed and owned by HS Orka. HS Orka will operate the project in cooperation with its consortium partners. Drilling is expected to begin shortly.

Unlike wind and solar power projects, which can be built in many places, geothermal works only where there is a suitable heat source, John Carson, Alterra's CEO, explains. "Iceland is a unique area where the strong heat of the Earth is very apparent and very easy to get to."

Research wells drilled in Canada decades ago found the right temperature for geothermal, Carson says. In the zones that were drilled, though, there wasn't

enough permeability in the rock around the drill holes for water to trickle in and turn into steam sufficient to power a plant.

"Where there's temperature, one could pretty well be certain that there are good permeable zones," Carson says. Although British Columbia has no proven geothermal wells, Carson sees potential to develop large-scale zones if the next round of exploratory drilling there hits pay dirt.

Alterra's largest and most promising new geothermal development is the Mariposa Project in Chile, which Carson says could be the country's premier known geothermal resource. Located south of Santiago, Mariposa has an inferred capacity of 320 MW and the site could produce its first electricity in Chile from geothermal sources as soon as 2017, after forming a joint venture with the Philippines' **Energy Development Corporation (EDC)**.

Exploratory drilling by Alterra has already identified a potential of more than 300 MW at Mariposa, in Chile's Maule region. The cash injection from EDC will finance drilling to test whether the geological conditions exist to support a geothermal power plant.

John Selters, General Manager of Alterra Chile, says that a key advantage at Mariposa is its proximity to the transmission grid. A line to Endesa Chile's 150-MW Los Condores hydroelectric plant, which has been approved by environmental authorities, will pass just 15 km from Mariposa, Selters noted.

The focus is on clean renewable energy sources says Carson, "We really feel that we're creating something new that is displacing coal and gas-carbon-emitting generation, doing all the positive things society needs in a clean way. In addition to doing good business, we are putting a little less carbon out on the earth, and keeping things cleaner." ■

# Huge helium reserve discovered in Tanzania, Africa

by Kathrine Moore

Though helium is the second most abundant element in the universe it has been in surprisingly short supply on planet earth. So much so there has been talk of banning its use in party balloons.

Helium's unique properties make it valuable in medicine and technology. On the table of elements, helium is a non-flammable, noble gas, the second lightest with the lowest boiling point. One of the important uses of helium is in MRI scanners.

It is also used in the manufacture of semiconductors, welding, airships and deep sea diving. The problem with helium is, like the party balloons it fills, it just floats off into space.

On June 27 however, there was a game changing announcement in regards to

helium supply. Researchers at Oxford and Durham universities in the UK announced, at the Goldschmidt geochemistry conference in Yokohama, Japan, that "a new, huge, helium reserve has been found in the Tanzanian East African Rift Valley." The researchers were working with Helium One, a Norway-based exploration company.


Up until now, helium was discovered by companies exploring for oil and gas. Exploration companies did not explore for helium. A CBC article, *Huge helium deposit found in Africa*, reported that, "the researchers decided to use oil and gas exploration techniques to do a targeted search for helium. They looked for the types of rocks that typically

produced helium and combined that with seismic images of underground structures that could trap gases. They also showed that volcanic activity provides the heat necessary to release the gas from the rock."

**Helium One** holds over 4,500 km<sup>2</sup> of prospecting licenses encompassing four project areas which all have surface seeps with helium concentrations ranging between 2.5%-10.5% by volume, and have ideal geology to host sub-surface helium accumulations. The company states that, "first mover advantage has given the company the ability to control a globally significant helium-bearing province." The licenses are held under the Tanzanian Mining Act, and are not within national parks.

The company reports that, "a maiden prospective resource assessment for Rukwa and associated Competent Persons Report (CPR) is currently a work in progress by Netherland, Sewell & Associates Incorporated (NSAI). Geophysical surveys are planned in the near term at Eyasi and Balangida with the intention of advancing them to the same status as Rukwa." A preliminary resource estimate was pegged at 1.5 billion cubic metres.

Helium One's website explains, "As helium is lighter than air, it is actively being lost into space, however helium is also actively being created via the decay of naturally occurring radioactive elements in rocks over vast periods of time. The produced helium (among other gases such as argon) is liberated and carried in saline groundwater. This is the setting for Helium One's projects, where the released helium has been transported by groundwater and can accumulate in porous geological formations such as sandstone." The company also states that, "Over the past 10 years, world prices for bulk liquid helium have increased by an estimated 106%. ■



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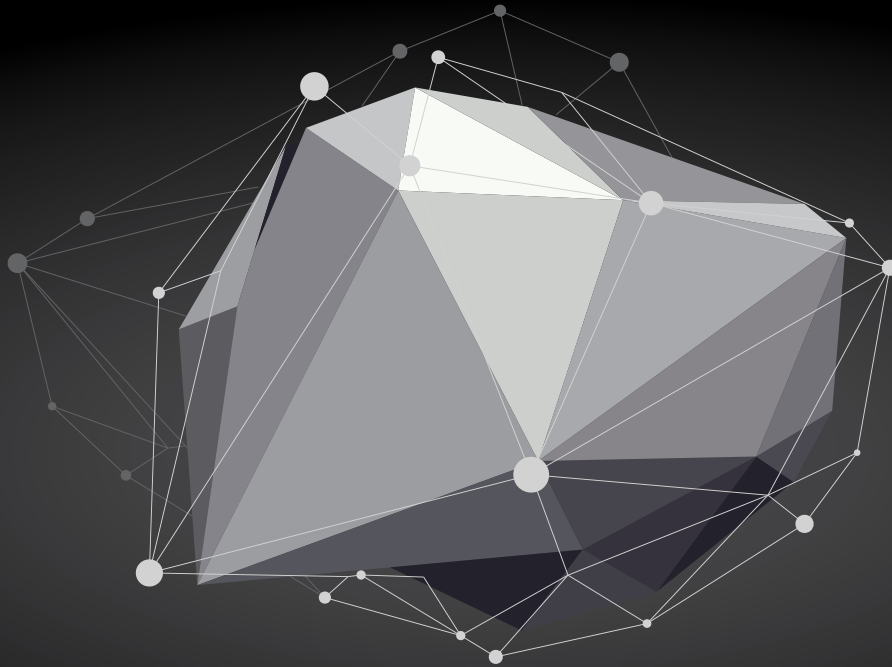
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## COMING EVENTS

The **2016 Precious Metals Summit** Beaver Creek is being held September 14-16 at the Park Hyatt, Beaver Creek, Colorado. For more information, go to [www.precioussummit.com/event/2016-colorado-summit/](http://www.precioussummit.com/event/2016-colorado-summit/)

The **Toronto MoneyShow** will be held September 16-17. Contact MoneyShow Customer Service Information at: Toll Free: 1-800-970-4355 International: 00 800 9221 1344 E-Mail: [customerservice@moneyshow.com](mailto:customerservice@moneyshow.com) Website: [www.moneyshow.com/](http://www.moneyshow.com/)

The **Denver Gold Forum** will be held September 18-21 at the Broadmoor resort in Colorado Springs, Colorado. Registration is by invitation only. For more information, go to [www.denvergoldforum.org/dgf16/](http://www.denvergoldforum.org/dgf16/)

The Canadian Institute is presenting **Building Aboriginal Relationships in BC** to be held September 20-21 at the Metropolitan Hotel, Vancouver, British Columbia. For more information, call 1-877-927-7936 or go to [www.canadianinstitute.com/](http://www.canadianinstitute.com/)

The **Mines and Money Conference** will be held September 26-28 at the Ritz Carlton, 181 Wellington St. West, Toronto, Canada. For more information, go to <http://www.infomine.com/events/Mines.and.Money.Americas.2016--IM31386.aspx>

**MineExpo International 2016** will be held September 26-28 in Las Vegas, Nevada. For more information, go to <http://www.minexpo.com/>

The 23rd **Annual CANDO National Conference & Annual General Meeting** will be held October 3-6 at the Kwanlin Dun Cultural Centre, Whitehorse, Yukon. For more information, go to <http://www.edo.ca/conference>

The **Québec XPLOR 2016 Conference** will be held October 5-6 at Place Bonaventure, Montreal, Québec. For more information, go to <http://aemq.org/EN/XPLOR/>

The **Maintenance, Engineering and Reliability / Mine Operators Conference** (MEMO 2016) will be

held October 16-18 at Sudbury, Ontario. For more information, contact Nadia Bakka, Conference & Registration Coordinator, at 1-514-939-2710 ext. 1333 or go to <http://memo2016.cim.org/>

Industrial Minerals Events' annual **Fluorspar Conference** will be held October 24-26 at the Radisson Admiral Hotel, Toronto, Ontario. For more information, go to <http://www.indmin.com/events/fluorspar/details.html>

The **BC Natural Gas Symposium** will be held October 25-26 at the Four Seasons Hotel, Vancouver, British Columbia. For more information, go to <http://www.canadianinstitute.com/2016/366/bc-natural-gas-symposium>

The **New Orleans 2016 Investment Conference** will be held October 26-29 at the Hilton New Orleans Riverside, 2 Poydras Street, New Orleans, Louisiana. Speakers include Pamela and Mary Anne Aden, James Altucher, Thom Calandra, Doug Casey, Eric Coffin, Brent Cook, Dennis Gartman, Brien Lundin, Bill

Murphy, Robert Prechter, Gwen Preston, Rick Rule, Peter Schiff and more. For more information, go to <http://neworleansconference.com/>

**Cambridge House International Inc.** and Katusa Research will co-produce the Silver and Gold Summit to be held November 14-15 at the Park Central Hotel, 50 Third Street, San Francisco, California. Tickets are US \$40. Hotel starting from US \$289.00/night. For more information, go to <https://cambridgehouse.com/event/53/the-silver-and-gold-summit-2016>

The Québec Mines Conference **Québec Mines 2016** will be held November 21-24 at the Québec City Convention Centre. For more information, go to <http://Quebecmines.gouv.qc.ca/pourquoi/index.asp>

The **Risk and Resilience Mining Solutions 2016 Conference** will be held November 14-16 in Vancouver, British Columbia. For more information, go to <http://www.mining.solutions/riskandresilience/> ■

### For investment information on these companies contact them directly

RW 14-5

- Aben Resources Ltd. (22)
- Aurvista Gold Corp. (17)
- Beaufield Resources Inc. (16)
- Belmont Resources Inc. (24)
- Building Aboriginal Relationships in BC (62)
- Carriere Industrial Supply (21)
- CIM MEMO 2016 (49)
- Colorado Resources Ltd. (8)
- Columbus Gold Corp. (43)
- Copper Fox Metals Inc. (10)
- Cornerstone Capital Resources Inc. (34)
- Corriveau J.L. & Ass. Inc. (65)
- Cruz Capital Corp. (53)
- Dajin Resources Corp. (44)
- Doubleview Capital Corp. (11)
- Eldorado Gold Corp. (44)
- Ellis Martin Report (65)
- Fournier Industries (19)
- Goldcorp Inc. (39)
- Golden Arrow Resources Corp. (41)
- Golden Queen Mining Co. Ltd. (23)
- Government of Northwest Territories (51)
- HPQ Silicon Resources Inc. (31)
- Hunt Mining Corp. (59)
- IDM Mining Ltd. (13)
- International Lithium Corp. (27)
- Invest in Northwest (35)
- Kootenay Silver Inc. (41)
- MagSilver Corp. (30)
- Marathon Gold Corp. (33)
- Midland Exploration Inc. (15)
- Millrock Resources Inc. (6)
- Minera Alamos Inc. (4)
- Mines & Money Americas (55)
- Nevada Sunrise Gold Corp. (5)
- New Orleans Investment Conference (67)
- Northwest Regional Airport (49)
- On Track Exploration Ltd. (65)
- ParcelPal (68)
- Pear Tree Securities Inc. (45)
- Pretium Resources Inc. (12)
- Prinoth Ltd. (18)
- Prosper Gold Corp. (13)
- Sirios Resources Inc. (17)
- Skeena Resources Ltd. (11)
- Silver and Gold Summit (63)
- Silver Wheaton Corp. (2)
- Stornaway Diamond Corp. (14)
- Tudor Gold Corp. (9)
- Women in Mining (65)

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THE REPORT



*continued from page 53*

ity prospects. We have started in Canada and are now evaluating North American and Australian prospects. The prospects will be available for option or selling outright making the company self-financing.”

In late July, Cruz Capital acquired six prospects in Canada; two in BC and four in the famous Cobalt Mining Camp of northeast Ontario. In 1903 extremely rich silver veins were discovered which also hosted significant quantities of cobalt – not yet an important metal. By 1905 there were sixteen mines with many more to come. Cobalt became the richest silver camp in the world. Silver-cobalt mineralization was widespread, often occurring in many parallel veins and dozens of mines achieved production. The last mines closed down in the early 1980s – sometimes leaving behind attractive mineralization at today’s metal prices. With the advent of lithium-cobalt ion batteries and several factories under construction, the Cobalt Mining Camp offers a compelling case for discovering and developing mineral prospects hosting the critical specialty metal cobalt.

Cruz Capital has just over eight million shares outstanding and seven separate cobalt assets. ■

An aerial view of the Fortune Minerals NICO Project 160 km northwest of Yellowknife, Northwest Territories during the test mining phase. Photo courtesy Fortune Minerals Ltd.



## Financing opportunities open up for quality projects

Mark Twain once observed that reports of his death had been greatly exaggerated. Perhaps the same can be said for the collective health of Canada's junior miners which has suffered years of low commodity prices and bearish market sentiment that has devastated share prices and limited their capacity to refinance.

Making matters worse, the regulatory burden of maintaining stock exchange listings has also proved onerous, with too much money being allocated to accounting, legal and administration fees and not enough for exploration. The fact that there hasn't really been a major grass roots discovery in Canada since the early 1990s speaks volumes, in my opinion.

It's hard to rationalize how mining investors are being well served by the heavy regulatory burden that was imposed on junior companies after the Bre-X fraud and one could realistically conclude that there's simply been too much money chasing too little risk.

That being said, financing options are beginning to open up for junior companies with upside production potential and good exploration projects although allocations for higher risk, grass roots exploration will – barring a runaway commodities market for gold and base metals – probably lag the pack for some time (years?) to come.

Canadian banks, which, in my view, tend to be much savvier than their international competitors when it comes to determining inflection points in commodities markets, have started to dip back into the sector. In actual fact, there's hardly a shortage of good mineral projects to choose from and entry points remain at historically low levels for any investor with cash – and heaven knows banks have plenty

of it these days. Let's have a look at a few recent deals with some thoughts on what they mean for the future.

Not all of the money is going into gold despite the metal's meteoric rise from the beginning of 2016. Arizona Mining, which appears to have made a very substantial zinc-lead-silver-copper discovery on its 100%-owned Hermosa Project in Santa Cruz County, Arizona, announced in late May an \$18 million private placement with a syndicate of banks led by Scotiabank and RBC Capital Markets.

The lead investor for the financing, which involved the placement of 14 million common shares at \$1.29 each, was none other than JP Morgan Asset Management U.K. (After years of upbeat forecasts, maybe the zinc market is finally turning the corner?)

Sean Roosen's quick-moving Osisko Gold Royalties concluded a \$15.6 million financing a month earlier in Arizona Mining which saw the company acquire a 1% net smelter royalty on all sulfide ores of lead and zinc (and any copper, silver or gold recovered from the concentrate from such ores) mined from its Hermosa Project for proceeds of \$10.0 million. In addition, Osisko subscribed to a \$5 million-unit offering at \$0.56 per share, generating a double on its investment in just over a one-month period.

In my experience, banks have a tendency to wait for a credible investor like Osisko to make the first move even if it means paying higher prices later on. (If the gold market in particular unfolds, as I think it will over the next two to three years, the banks can have my share portfolio at much higher prices as well). A word of warning, however: when banks start piling willy-nilly into every deal in the

marketplace, you can bet the bull market is over and it's time to head for the hills. I've seen the movie before.

A syndicate of almost one dozen banks led by Macquarie Capital Markets and including TD Securities, BMO Nesbitt Burns, CIBC World Markets and Scotia Capital, concluded a \$31 million bought deal with Richmond Mines at \$10.40 per share.

Richmont currently produces gold from the Island gold mine in Ontario and the Beaufor Mine in Québec where it also operates the Camflo mill. In addition, Richmont is completing an extensive development program to access a high-grade, million-ounce, deeper resource established below its Island Gold Mine. This is expected to reposition the mine into a long-life, higher-production, lower-cost operation capable of generating long term free cash flow and high-quality growth.

CEF Holdings Ltd., owned jointly by CK Hutchinson Holdings Ltd. and CIBC, recently concluded a US \$60 million private placement with NexGen Energy which appears to have made a barn burner of a uranium discovery in Saskatchewan's Athabasca Basin. When it comes to uranium deposits, they really don't get much better than those found in this world class uranium basin.

What most of these financings have in common is the fact they are focused on producing or advanced stage exploration projects, overwhelmingly in Canada, but also in stable jurisdictions in the US and Mexico. The sustainability of this trend is certainly something to watch and what we might end up seeing is a renaissance in Canadian exploration activity and discovery that is long overdue. ■

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Shares Outstanding:	25,401,511
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52 Week High:	\$.29
52 High Low:	\$.015

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