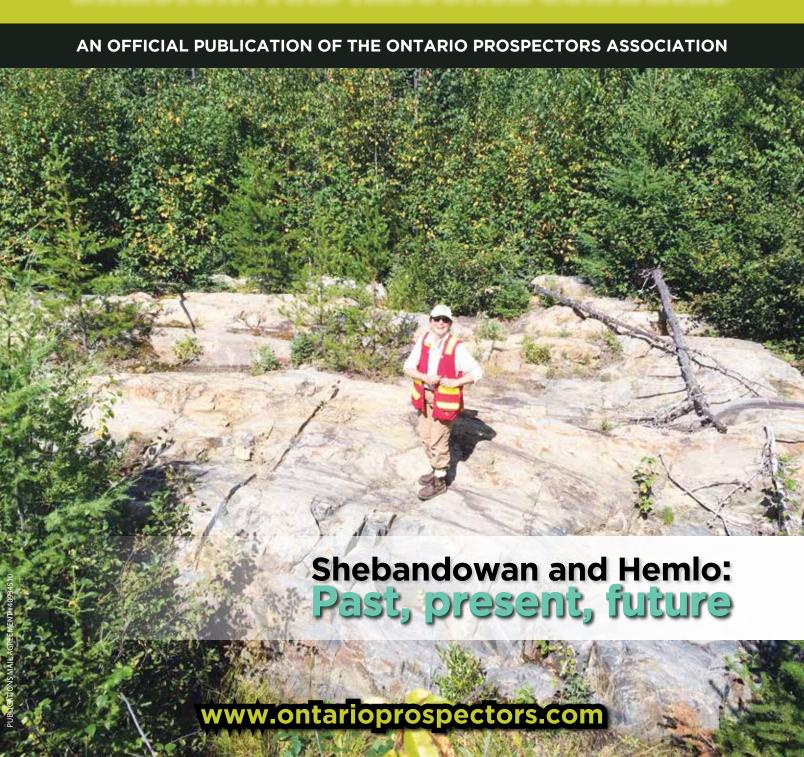
# Ontario Mining & Exploration

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# TABLE OF CONTENTS

- 6 Message from the Ontario Prospectors Association Executive Director, Garry Clark
- 8 Message from the Minister of Energy, Northern Development and Mines, Greg Rickford
- **12** Ontario Mining Operations 2020
- 14 Shebandowan and Hemlo: Past, Present, Future
- **22** Gold Mines
- 29 Other Metal Mines
- **32** Diamond Mines
- 33 Major Industrial Mineral Producers
- **34** Gemstone and Mineral Specimen Mines and Quarries
- **36** Lime and Specialty Limestone Producers
- **37** Trap Rock Producers
- **38** Brick Producers
- **38** Cement Producers' Quarries
- **39** Dimension Stone and Specialty Aggregate Producers
- 43 Corporate Offices of Companies with Metal Mines in Ontario
- **44** Companies Actively Exploring in Ontario
- 49 Advanced Mineral Projects in Ontario 2020
- Exploring Under Conductive Clay Cover:
  Galvanic HeliSAM Case Studies from Australia and
  Canada Using the Magnetometric Conductivity Technique
- **54** Index to Advertisers
- Ontario Prospectors Exploration Showcase: "Exploration Finds Mines"

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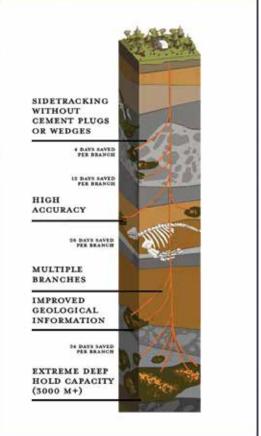
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# Message from the Ontario Prospectors Association Executive Director, Garry Clark

# ONTARIO PROSPECTORS EXPLORATION SHOWCASE (OPES)

### "Exploration finds Mines!"

April 7 and 8, 2020

This year, the Ontario Prospectors Association is once again delivering the OPES at the Valhalla Inn in Thunder Bay. The year has been a test of explorers in Ontario. Raising funds has been extremely challenging for some and easy for others.

The OPES will have over 80 booths and posters, 12 core shacks and more than 30 speakers. Last year, we had 500-plus participants over the two days.

Speakers this year include Great Bear Resources, Warrior Gold, Musselwhite Mine, Noront, Manitou Gold, Wesdome, Alamos and Metals Creek.



### **OPA** activities

### Minister's Mining Committee

The OPA has a seat at the committee table to help inform the Minister on issues that affect the explorers of the province. This committee consists of explorers and miners from large and small companies. To date, the meetings have been very informative and well-attended by the provincial ministers involved in mining and various deputy and assistant deputy ministers.

On Sept. 10, there was a meeting of the Minister's Mining Committee. This was the first meeting since the inaugural meeting at PDAC.

The agenda included:

- Flow-through increase write-offs in Ontario;
- Support for explorers;
- Resource revenue sharing and consultation.

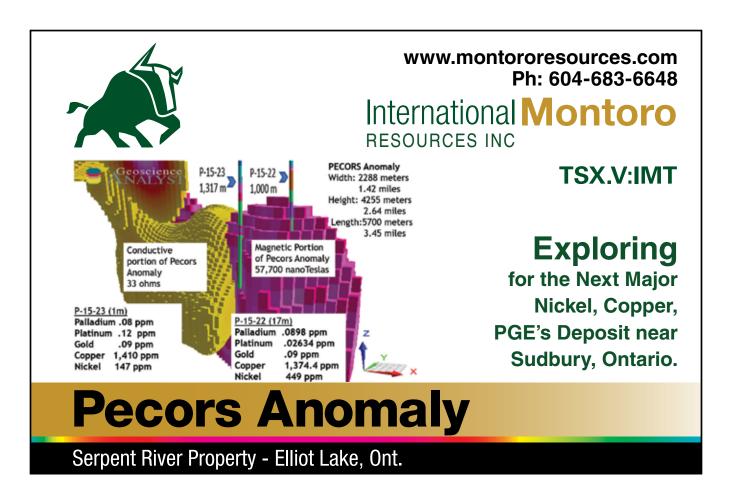
- 1. There was good take-up of the concept that Ontario needs to be on a level playing field with the other provinces to be able to retain explorers. I think the Minister is grasping the idea that increased the flow-through write-off provincially will retain funds in Ontario.
- 2. The JEAP funding model was reviewed and the Ministry has shown that for every dollar that was rebated, 18 industry dollars were leveraged. The Minister spoke of retooling NOHFC and looking at ways to create a new program to support industry.
- 3. Resource revenue sharing was spoken of in context of costs and potential proximal effected communities (including municipalities) to mines sharing more than distant communities. Consultation was discussed with the idea of dealing with the communities that want to talk similar with the execution of the direction being taken for the north south road to Ring of Fire. Also, there was discussion of template agreements for MOUs as we had started with discussion with Wabun Tribal Council.

The OPA has been working with Save Canadian Mining's Terry Lynch. Save Canadian Mining is a movement to return market rules to the fair and transparent standard that helped deliver prosperity for over 142 years. Together, we can save Canadian mining.

In 2012, IIROC and CSA removed a trading rule known as the "tick test", which restricted short-selling to neutral or sales to positive price changes at the time of the sale. These changes were applied not only to the main listing venue of TSX Venture Exchange, but are also equally applied across all Canadian trading venues, of which there are 14 today, reducing TSX Venture's ability to effect any change. Since removal of the tick test, the Canadian markets have evolved, and there now exists a dynamic where short-selling activities, high-frequency trading and algorithms are exploiting the lack of a tick test to the detriment of Canada's junior markets. We call on CSA and IIROC to evaluate re-instituting the tick test.

### **Garry Clark**

1 (866) 622-3284 gjclark@ontarioprospectors.com









ntario's government is working with the mineral sector to create jobs and bring economic prosperity to every corner of the province. We are doing this by keeping taxes and power rates low and cutting unnecessary, costly red tape.

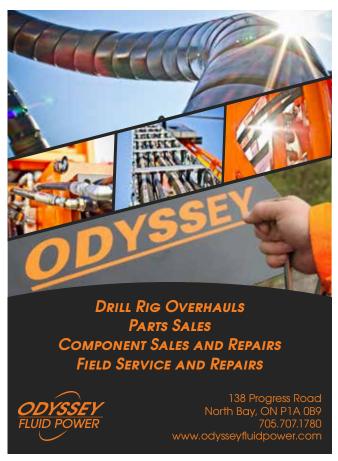
We are optimistic about the future of mining and mineral exploration in Ontario. Our government continues to work hard – alongside our partners at the Ontario Prospectors Association (OPA) – to ensure the interests of prospectors and the mineral exploration industry have a strong voice in Ontario, across Canada and around the world.

Our Mining Working Group, which includes leaders from mining and exploration companies, prospectors and Indigenous business organizations, is focused on addressing key issues facing Ontario's mining and exploration sector, while identifying opportunities to ensure future growth, competitiveness and prosperity.

That's why regulatory and legislative changes to Ontario's Mining Act are also part of our government's commitment to cut red tape and foster innovation and investment in the sector.

We have good reason to continue driving this change. As a leader in mineral exploration and production, Ontario is among the top 10 jurisdictions in the world for exploration spending. There are about 150 companies actively exploring more than 200 projects in the province. Exploration spending in Ontario was \$583 million in 2018, an eight per cent increase over 2017.





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AMMONIUM NITRATE STORAGE

As Canada's No. 1 mineral producer, Ontario generated \$10.1 billion worth of minerals in 2018. The mineral wealth and associated economic activities are a fundamental building block and key source of livelihood for many communities in Northern Ontario. The mining industry creates more than 26,000 direct jobs and approximately 50,000 indirect jobs in mineral manufacturing and processing in Ontario.

The province's abundant mineral resources, stable financial climate and competitive mining tax regime attracts a wealth of exploration and mining companies, including some of the world's largest and most accomplished, such as Barrick, Newmont, Glencore, Kirkland Lake Gold and Vale.

Since June 2018, several new mines have opened across Ontario. Newmont opened Borden gold mine in Chapleau, the world's first all-electric underground gold mine, and the Cochenour gold mine in Red Lake. Harte Gold opened the Sugar Zone gold mine near White River.

In addition, Kirkland Lake Gold, Newmont, Vale, Alamos, Glencore and Pure Gold are all advancing mine expansion or new mine construction projects across Ontario. Promising exploration projects continue to advance across the province as well, such as Great Bear's Dixie gold project, Frontier Lithium's PAK lithium project, Greenstone Gold's Hardrock gold project and Moneta Porcupine's Golden Highway gold project.

Our government will continue to work hard to increase competitiveness and support an attractive investment climate. The mining sector is an important contributor to the local and provincial economy, creates good paying jobs and a better quality of life for all families across the province.

By working together, we will continue to send a clear message to the world that Ontario is open for business and open for jobs. •

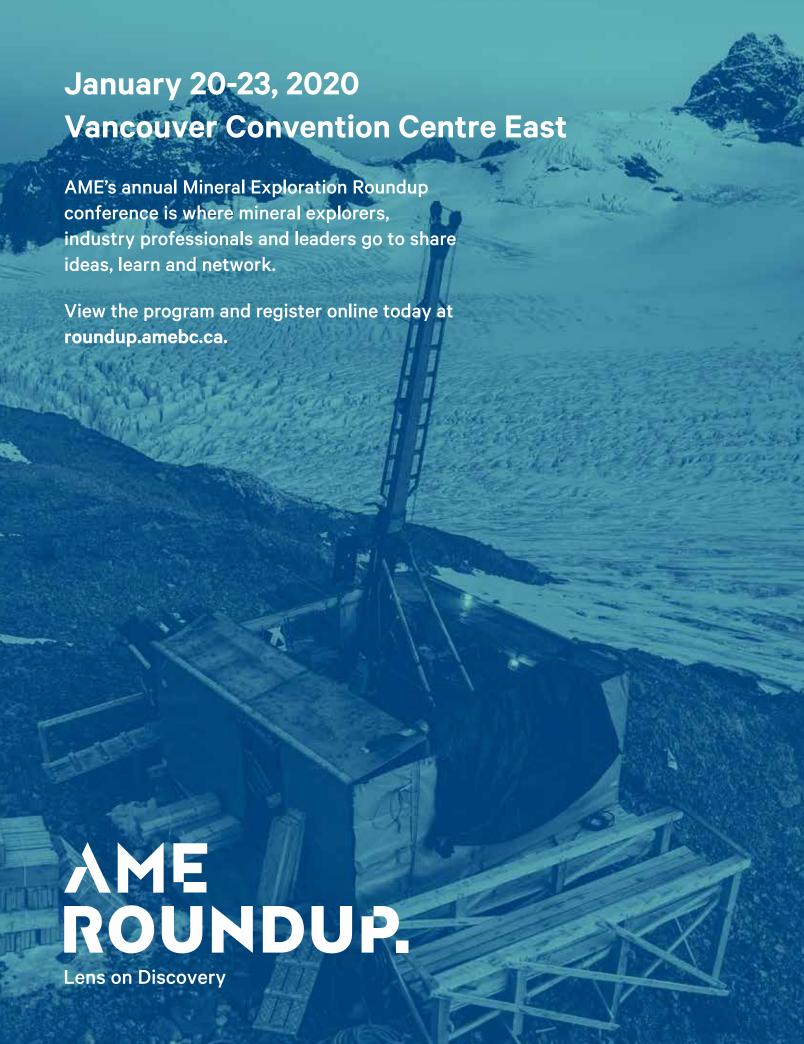
### The Honourable Greg Rickford

Minister of Energy, Northern Development and Mines

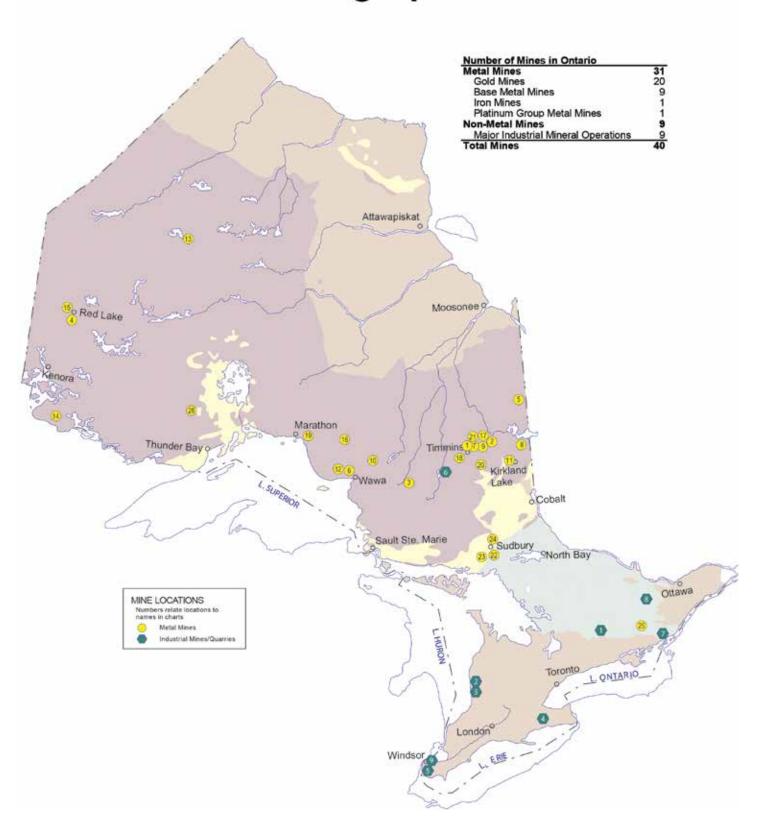








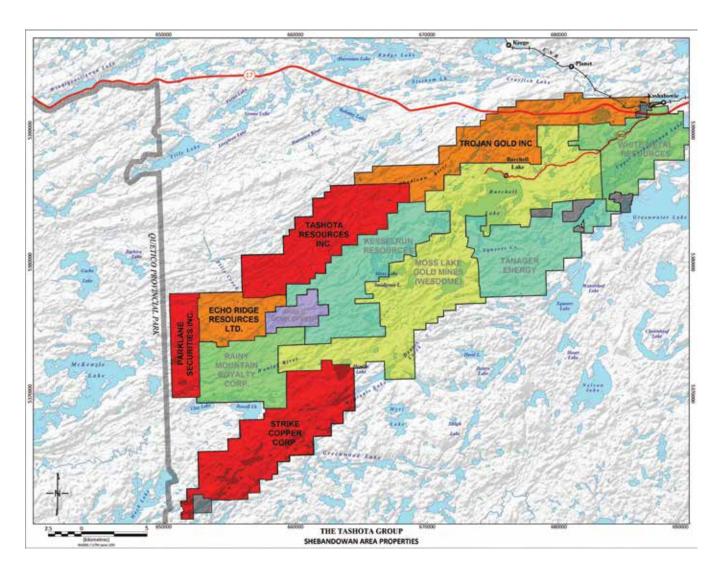
# **Ontario Mining Operations 2020**



	GOLD MIN	ES	
	Name	Company	
1	Bell Creek Mine	Pan American Silver Corp. – Tahoe	
Ľ.		Canada	
2	Black Fox Mine	McEwen Mining Inc.	
3	Borden Mine	Newmont Corp. – Porcupine Gold Mines	
4	Cochenour Mine	Newmont Corp.	
5	Detour Lake Gold Mine	Detour Gold Corp.	
6	Eagle River Mine	Wesdome Gold Mines Ltd.	
7	Hollinger Mine	Newmont Corp. – Porcupine Gold	
8	Holloway – Holt Mine	Mines Kirkland Lake Gold Ltd.	
9	Hoyle Pond Mine	Newmont Corp. – Porcupine Gold Mines	
10	Island Gold Mine	Alamos Gold Inc.	
11	Macassa Mine	Kirkland Lake Gold Ltd.	
12	Mishi Gold Mine	Wesdome Gold Mines Ltd.	
13	Musselwhite Mine	Newmont Corp.	
14	Rainy River Mine	New Gold Inc.	
15	Red Lake Gold Mines	Newmont Corp.	
16	Sugar Zone Mine	Harte Gold Corp.	
17	Taylor Mine	Kirkland Lake Gold Ltd.	
18	Timmins West Mine	Pan American Silver Corp. – Tahoe	
10	Williams Mine	Canada Barrick Gold Corp.	
20	Young – Davidson Mine	Alamos Gold Inc.	
20	BASE METAL		
	Name	Company	
21	Kidd Creek Mine	Glencore PLC	
22	Sudbury Operations:	KGHM International Ltd.	
	McCreedy West Mine		
23	Sudbury Operations:		
	Coleman Mine		
	Copper Cliff North Mine	Vale S.A.	
	Creighton Mine		
	Garson Mine		
-	Totten Mine		
24	Sudbury Operations:	Glencore PLC	
	Fraser Mine	Glencore PLC	
	Nickel Rim South Mine  IRON MINE	9	
	Name	Company	
25	Tomclid Iron Mine	Ferromin Inc.	
20	PLATINUM GROUP M		
	Name	Company	
~~		Impala Platinum Holdings Ltd. –	
26	Lac des lles Mine	Impala Canada Ltd.	
	MAJOR INDUSTRIAL MINE		
	Name	Company	
1	Blue Mountain Operations (nepheline syenite)	Covia Canada Ltd.	
2	Goderich Brine Field (salt)	Compass Minerals Canada Corp.	
3	Goderich Mine (salt)	Compass Minerals Canada Corp.	
4	Hagersville Mine (gypsum)	Gebr. Knauf KG	
5	Ojibway Mine (salt)	K+S Windsor Salt Ltd.	
6	Penhorwood Mine (talc)	Imerys Talc	
7	St. Lawrence Mine (wollastonite)	Canadian Wollastonite	
8	Tatlock Quarry (calcium carbonate) Windsor Brine Field (salt)	OMYA Canada Inc. K+S Windsor Salt Ltd.	
	ovinosof Brine Field (SAIT)	INTO WINDSOF SAIL LTD.	

# Shebandowan and Hemlo: Past, present, future

# SHEBANDOWAN GREENSTONE BELT



here was – and is – a lot going on in the Shebandowan Greenstone

Belt

The Shebandowan Greenstone Belt is part of the Wawa Abitibi Subprovince, the world's second-largest historic gold producing terrane.

According to the Trojan Gold Inc. website (trojangold.com), recent studies "have recognized that the many show-

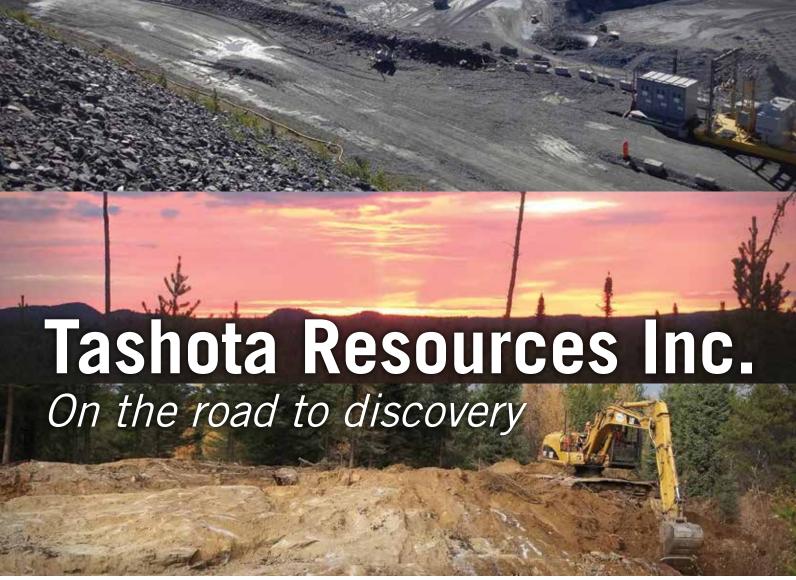
ings and deposits in this area are likely part of an extensive IOCG (iron ore copper gold) mineralized system." IOCG ore deposits are important and highly valuable concentrations of copper, gold and uranium ores hosted within iron oxide dominant gangue assemblages which share a common genetic origin.

Tremendous size, relatively simple metallurgy and relatively high grade of

IOCG deposits can produce extremely profitable mines.

Gold was first mined in the Northwestern Ontario Shebandowan area in 1871. Shebandowan became very active from 2003 through 2008, and then years later, starting in 2012 through 2019, Shebandowan has – once again – become the target of a staking and acquisition rush.





Tashota Resources Inc. ("TRI") is a Prospect Generator junior exploration company led by a talented team of professionals having significant exploration, engineering, project financing, and permitting experience. Under their guidance, TRI has acquired land positions in Ontario (Hemlo and Larose) and Quebec (Opinaca) that represent significant mineral exploration potential.

### **Investment Highlights**

- Well-located, sizeable properties accumulated based on geological merit
- Focused spending: gaining critical mass at core projects to move from project generator model to high growth exploration company

- Expected news on Hemlo out of Barrick likely to support TRI's shear zone model, further highlighting the potential on TRI's ground
- Larose has the potential to be a sizeable bulk tonnage prospect with gold-bearing shear zone traced for 9 km
- Sirios' Cheechoo discovery has reinvigorated the Opinaca Camp. Modest program on TRI's ground warranted to de-risk and maintain optionality
- Goal to increase strategic corporate and institutional investor exposure with a view to be well supported in an eventual going public transaction

Tashota Resources Inc.

### www.tashotaresources.com

Trojan Gold Inc.

### www.trojangold.com

82 Richmond Street E., Suite 401 Toronto, ON M5C 1P1

- C: 416-315-6490
- o: **647-350-6122**
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\*Both companies expect to be public in 2020

The dominant player in the area is Wesdome Gold Mines, with the 3,000,000-plus ounce Au, Moss Lake deposit. In 2016, Wesdome consolidated properties adjacent to the Moss Lake deposit, increasing their footprint in the area.

Currently, Tashota Resources Inc. (along with associated companies through joint directors) is involved in a prolific gold/copper/zinc play at Shebandowan. Tashota and partners control over 44,000 acres in the Sheband-

owan Greenstone Belt, representing the most significant land position in the gold camp. Charles Elbourne, president, director, and CEO of Tashota Resources Inc., says his approach to acquiring Shebandowan – among other properties, such as Hemlo – is "lowkey."

"It's taken over eight years to acquire all these properties in the Shebandowan Greenstone belt, and Hemlo Gold Camp. By staying private and not going public, Tashota saved a lot of money for our shareholders," Elbourne says. According to Ernst & Young's latest study, 49 mining and metals companies delisted from the TSX and TSX-V in 2014 and a further 172 companies delisted in 2015.

"You have to acquire the right properties, the right people, then provide the right structure on each deal," he says.

Elbourne recalls waiting for properties to come open or option at Shebandowan and Hemlo, stating his philosophy is TEO (targeted exploration opportunities): seeking out opportunities where others gave up due to bad market conditions, mismanagement or lack of ongoing financing.

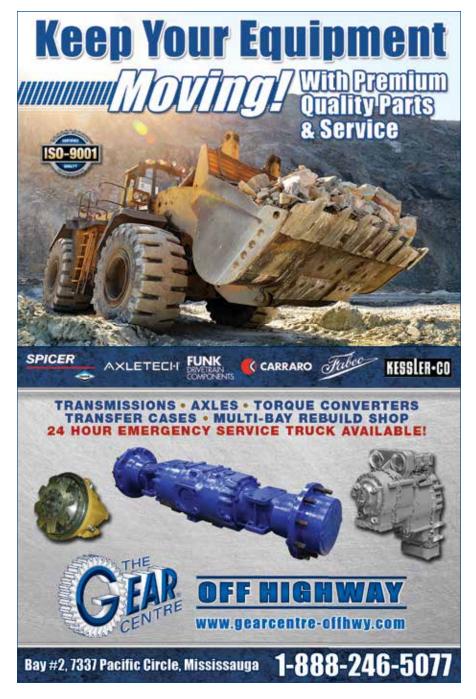
He uses the triangle method, which focuses on three points: property, people, and structure.

Many will argue that the most critical part of the triangle method is people first, then property and structure. Elbourne disagrees with this approach; why would knowledgeable geologists and prospectors be interested in working claims without any merit, or at least some history, unless they are just looking for work?

Instead, the approach should be to acquire a property with a good history, good results, and preferably right beside an existing deposit; this will draw experienced geologists and prospectors and take away some of the risks. The bear market in gold over the past eight years has provided this opportunity.

Next, get prospectors and geologists that are specifically related to the immediate area of acquisition. In this case, Tashota has been very fortunate in acquiring two notable prospectors, Russell Kwiatkowski (original discoverer of Larose and Sungold properties in Shebandowan) and Rudy Wahl (well-known for significant discoveries and very familiar with the Hemlo Gold Camp and surrounding areas).

Both gentlemen have received many awards, from Prospector of the Year to Lifetime Achievement Awards in Mining; Wahl was awarded an honor-





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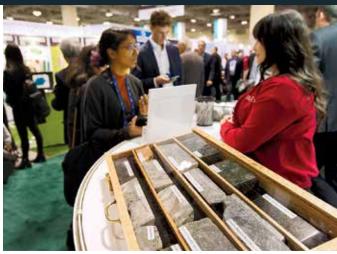
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ary doctorate degree in science from Lakehead University in 2017, and will be awarded the upcoming Bill Dennis Award for 2020. Both prospectors are board members of Tashota.

Once you have good prospectors, one needs to add a very experienced geological team that is familiar with the properties to the equation.

Tashota Resources and sister company Trojan Gold Inc. have been fortunate to attract outstanding geological talent as directors and advisors. The team consists of the following directors: Dr. Mary Louise Hill (on the front cover), professor of geology, Lakehead University; Gerry White, P.Geo., B.Sc., who served many years as resident geologist with the Ministry of Mines; Rodney Barber, P.Geo., B.Sc., recently superintendent geologist for 18 years at Barrick Gold's Hemlo Mine; Quentin Snider, previously band administrator for Lac des Mille Lacs First Nations; Victor Hugo, senior financial analyst and formerly head of Finance at Barrick's Hemlo Mine; and Ike Osmani, M.Sc., P.Geo., responsible for developing the Osmani Gold Deposit, containing almost one million ounces of gold (indicated and inferred) at Shebandowan.

Advisors to the companies include

Dr. Colin Bowdidge, over 40 years as chief geologist for various public mining companies, and David Malouf. Dr. Bowdidge also has extensive hands-on experience in modern geophysical and geochemical exploration techniques. Malouf brings a lifetime of hands-on experience in Canadian mining and is very experienced as a mine operator, having overseen the Empire Mine operations in Beardmore, Ont.

With prospectors and geologists in charge of the development and advancement of the portfolio of properties, the remaining component is company structure.

During the past few years, there has been an increase in financings for private mining deals as investors have strayed from the public domain. This has forced public junior mining companies to raise capital at distressed prices that, unfortunately, dilute their share base. By staying private for the past six years, Tashota has managed to avoid this situation, but with a new bull market in gold, it is time to go public.

# Why, Shebandowan, why Larose, why Sungold?

Management of Tashota acquired the Larose property based on its high-

grade gold results by previous owners. In 2011, P1 Trench sampling resulted in 45.93 g/t Au over 3.1 metres and 54.21 g/t Au over 1.4 metres.

With less than 3,000 metres of previous drilling on the 12,000-plus acreage property, Larose provided an excellent opportunity for further development. Past sampling and drilling had resulted in 6.8 g/t to 371.9 g/t Au, extended over 4.6 kilometres of shear zones. These shear zones are now over nine kilometres, based on fieldwork, and a recent discovery, the Alexander Trench, resulted in samples containing 50.9 g/t Au, and 19 g/t Ag. Previous samples from the P1 Trench taken by geologists ranged from 55.88 g/t to 173.39 g/t Au. Drilling during 2019 at the P1 Trench intercepted, at shallow depth (less than 50 feet), 68.6 g/t Au over .55 metres, situated approximately 15 metres from the 2016 drill results, which included 27.69 g/t Au in LR16-01, 19.73 g/t Au in LR16-02 and 37.34 g/t Au in LR16-03, all over core lengths of 0.50 metres.

The 12,000-plus acre Sungold property, situated approximately six kilometres south of the Larose property, is directly adjacent to the west of Wesdome's Moss Lake 3.000,000 oz/t Au



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deposit. Wesdome completed the acquisition of 100-per cent interest in the Moss Lake property in March 2014, through the buyout of the Moss Lake Gold Mines that they did not already own. As noted above, Wesdome continued to expand the Moss Lake claim positions in 2016, consolidating the properties into the present holding.

The Sungold property, acquired in 2018 and recently owned by Noront, met all the requirements for acquisition, especially after Wesdome purchased the southeast extension of Xstrata's Hamlin IOCGU occurrence. The Hamlin IOCGU occurrence has the potential for Ni-Cu-PGE and Porphyry Cu mineralization. One drill hole. HAM-11-75. approximately 150 metres from the Sungold claim line next to Wesdome, came in at 156.1 metres grading 0.35 per cent Cu, 0.015 per cent Mo, 2.15 g/t Ag and 0.87 g/t Au. Another drill hole, in the immediate area, HAM-05-35, had the copper equivalent of 0.68 per cent over 49 metres (162 feet).

Previously, in 2005, when Freewest Resources owned the Sungold property, backhoe trenching of the Wye Lake Zone intermittently exposed massive, semi-massive and stringer sulphides over an 850-metre strike length. Highlighting the trenching program was the uncovering of massive zinc-copper mineralization at two locales, situated 400 metres apart and on strike with each other. Assays of up to 27.8 per cent zinc and 0.91 per cent copper

were obtained at one trench line and up to 29.8 per cent zinc and 0.84 per cent copper at another. A few months earlier in March 2005, the Sungold property purportedly had a street IPV of \$54 million. Drill holes during 2005 in the Wye Lake area had also provided exciting results, including WL05-08 of 13.75 metres of 0.77 per cent Cu and WL05-13 of 12.45 metres of 0.72 per cent Cu. Management of Strike Copper Corp. will start fieldwork during 2020 to further delineate the resource and seek listing on the CSE.

### Hemlo - the gold camp that refuses to die

Hemlo has a fascinating history. Although gold was first discovered at



Hemlo back in 1944 by Peter Moses, an Ojibway prospector from Marathon, nothing took place until 1980 when the 76th drill hole hit a resource that started a major staking rush in the immediate area. In 1981, Corona Resources at the time was trading around \$1.10 based on rumours coming out of the camp that something big was happening. By May 1983, Corona was trading at \$61.00 (a 5,445 per cent return). Not to be outdone, the other two majors in the camp, Goliath Gold moved from \$0.45 to \$32 (7,110 per cent), and Golden Sceptre traded from \$0.40 to \$31 (7,650 per cent). By March 1983, gold had topped out near \$500, and the Hemlo Rally was over.

But the Hemlo Gold Camp was just getting started. Noranda spent over

\$250 million building the first facility, followed by other companies, and production began in 1985. Hemlo became the most significant mine find in the western hemisphere. The David Bell and Golden Giant Mines were among the lowest cost gold mines in the world at the time.

Here is what is interesting about the Hemlo Gold Camp: it's like the Energizer Bunny - it just keeps going. The central Golden Giant mine was closed in January 2006, and the David Bell and Williams mines scheduled to close in 2009 and 2011, respectively.

Fast forward to the present, and now we find Barrick announcing the probability of the mine continuing to 2028 and possibly 2035.

But that was not the case in 2011 when it was thought that the Williams Mine might close in 2014. In 2013, Barrick Gold announced that another 1.000.000 ounces was discovered, and the mine production would extend to 2018.

Tashota management then moved to acquire claims adjacent to Barrick's open pit. Why bother purchasing claims nearby if the mine was probably going to close in four years?

The reality is Hemlo has never consistently been explored since the 1980s outside of the immediate comfort area where the original discovery took place.

Here is the problem at Hemlo: approximately 90 per cent of the 22,000,000 ounces of gold extracted from the three mines, until recently, was below 500 metres. This anomaly scares most juniors away from the area, but this doesn't mean the gold is not there. It's outside the comfort zone, yes - but well within reach of modern mining technology.

Barrick's management realized this in 2013, and the result is the present administration at Barrick intends to make Hemlo a Tier 2 mine operating at 215 to 300 koz and generate a 20 per cent IRR.

By 2015, management at Tashota moved to acquire more claims adjacent and close to Barrick's Williams Mine. accumulating over 18,000 acres, mainly adjacent to Barrick.

A major airborne T-Dem performed in 2014 and 2016 covered the entire







# HERE IS WHAT IS INTERESTING ABOUT THE HEMLO GOLD CAMP: IT'S LIKE THE ENERGIZER BUNNY - IT JUST KEEPS GOING.

property, including Aster Satellite LWIR Thermal Imaging Survey in May 2019. Combined, this helped determine potential exploration and drill targets. These targets will be carefully examined during 2020, using UAV Mag, MMI and drilling.

Management of Tashota and Trojan Gold is looking forward to working Hemlo during 2020, and Trojan will be applying for listing on the CSE.

A merchant banking company, Interbanc Capital Corp., is presently being formed to better centralize the operation of all the properties and associated companies, this way better utilizing overhead costs, concentrating services, and maintaining proper control.

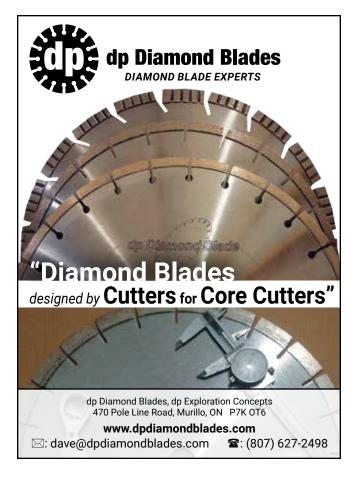
The "Hemlo Gold Story", produced by the CBC back in the '80s provides a

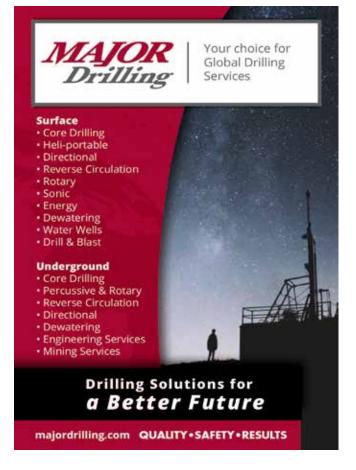
fascinating history of Hemlo and can be found on the (tashotaresources.com) website.

Elbourne has another gold project he is working on which he calls "The Sleeper" that shows historical results from shaft work in 1936, showing a test shipment of 1,000 pounds of ore averaging 1.12 ounces per ton of gold, only 100 to 150 feet down in the shaft and adits. While the results may be guestionable (it was 1936), a map was drawn by a well-respected company at the time, and nobody talked grams in 1936. Nonetheless, in 2013 drilling over the immediate area resulted in some great numbers starting nine feet from surface, including 8.226 g/t Au over 8.70 metres, which is sufficient to get excited about the prospect. Old historical government files indicate the ongoing opportunities to find gold in Ontario.

### The children are the future

Shebandowan is on the cusp of an exploration revival. Tashota Resources has the potential of not only becoming a groundbreaker in new discoveries, but also a forerunner in corporate social responsibility with the First Nations people. Partnering up with Outland Youth Employment Program (OYEP) has been a significant milestone for our company. It's really about relationship-building with Indigenous communities through consulting with elders to ensure success in training, education and employment for the Indigenous youth.





# **GOLD MINES**

### BELL CREEK MINE - Pan American Silver Corp. - Tahoe Canada • gold producer • underground

**Address** 1515 Government Road South, Timmins, ON P4R 1N4

Tel: (705) 269-4344 | Fax: (705) 268-1794 | www.panamericansilver.com

Mine Manager Dave Bernier

**Production Rate** 800 tonnes per day (mine), 4,400 tonnes per day (mill)

**Production** 2016 - 162,000 ounces (estimate for Bell Creek and Timmins West mines combined)

2017 - 167.000 (Bell Creek and Timmins West mines combined)

2018 – 167,500 (estimate for Bell Creek and Timmins West mines combined) 2019 – 157,500 (estimate for Bell Creek and Timmins West mines combined) 2020 – 172,500 (guidance for Bell Creek and Timmins West mines combined)

Resources 17,000,000 tonnes at 3.27 g/t containing 1,787,000 ounces of gold (Measured and Indicated - June 2019)

Opened 2012

**Employment** 650 employees, 70 contractors (Timmins West and Bell Creek combined)

**Notes:** Ore from the Bell Creek and Timmins West mines is processed at the Bell Creek Mill. Pan American Silver Corp. purchased its Ontario mines through its acquisition of Tahoe Resources in a US\$1.1 billion deal that closed Feb. 22, 2019. Pan American Silver operates its Ontario mines under its subsidiary Tahoe Canada. In 2020, production is expected to be increased by 20 per cent at Bell Creek and incremental production increases are expected over the following four years. Bell Creek and Timmins West are expected to operate through 2025.

### **BLACK FOX MINE** - McEwen Mining Inc. • gold producer • underground

**Address** P.O. Box 605, Matheson, ON POK 1NO

Tel: (705) 273-1077 | Fax: (705) 273-1097 | www.mcewenmining.com

Mine Manager Dan Gagnon, General Manager

**Production Rate** 700 tonnes per day (mine), 2,000 tonnes per day (mill)

**Production** 2016 - 62,171 ounces of gold

2017 - 66,733 ounces of gold 2018 - 48,848 ounces of gold 2019 - 35,721 ounces of gold

2020 - 39,550 ounces of gold (estimate)

**Resources** 7,758,000 tonnes at 5.31 g/t containing 1,326,000 ounces of gold (Measured and Indicated – July 2019)

**Opened** 2009 (open pit, closed 2015), 2011 (underground)

**Employment** 257

**Notes:** Black Fox Complex is comprised of the Black Fox and former Stock mines, Black Fox-Stock mill and Froome and Grey Fox deposits. Production at Black Fox is planned to be scaled back in 2020 to allow for greater freedom to explore in the mine and to free resources to advance development of the Froome underground deposit. Updated guidance has yet to be provided reflecting lower production levels. In 2019, an \$18-million property-wide exploration program was conducted at Black Fox Complex. Exploration in 2020 will focus on the Stock West, Grey Fox and Black Fox areas.

### BORDEN GOLD MINE (PORCUPINE MINES) - Newmont Corp. • gold producer • underground, open pit

**Address** 4315 Gold Mine Road, P.O. Box 70, South Porcupine, ON PON 1HO

Tel: (705) 235-6589 | Fax: (705) 235-6551 | www.newmont.com

Mine Manager Marc Lauzier, Mine General Manager, Porcupine Mines Operations

**Production Rate** 1,800 tonnes per day

**Production** 2019 - 225,000 ounces of gold (management projection for Porcupine Mines Operations combined)

2020 - 325,000 ounces of gold (guidance for Porcupine Mines Operations combined)

**Resources** 492,730,000 tonnes at 1.04 g/t containing 16,540,000 ounces of gold

(Measured and Indicated - June 2018 for Porcupine Mines Operations combined)

**Opened** 2019

**Employment** 800 employees, 445 contractors (approximate figures for Porcupine Mines Operations combined)

**Notes:** Porcupine Mines Operations include the Hoyle Pond, Hollinger, Borden, and former Dome mines, several stockpiles and a mill. Ore from Borden is processed at the Porcupine mill near Timmins. Commercial production was declared at Borden Mine effective Oct. 1, 2019, on time and within budget. Between 200 and 250 jobs were created at Borden mine. Borden is the world's firs all-electric underground gold mine.

### COCHENOUR GOLD MINE (RED LAKE GOLD MINES) - Newmont Corp. • gold producer • underground

**Address** 17 Mine Road, Bag 2000, Balmertown, ON POV 1CO

Tel: (807) 735-2077 | Fax: (807) 735-2765 | www.newmont.com

Mine Manager Bill Gascon, Mine General Manager

**Production Rate** 1,500 tonnes per day

**Production** 2019 - 155,000 ounces of gold (guidance for Red Lake Gold Mines operations combined)

2020 - 277,869 ounces of gold (estimate for Red Lake Gold Mines operations combined)

Resources 14,490,000 tonnes at 9.83 g/t containing 4,580,000 ounces of gold

(Measured and Indicated for Red Lake Gold Mines operations combined - June 2018)

Opened

**Employment** 981 employees and contractors (Red Lake Gold Mines Operations combined)

**Notes:** Cochenour achieved commercial production status in April 2019. Production comes from the old Cochenour mine and the new Upper Cochenour Zone. The redeveloped shaft of the old Cochenour mine is used to access ore between 1,091- and 1,680-metre levels. The Cochenour mine is located on the site of the historic Cochenour-Willans mine that operated from 1929 to 1971, producing 1.2 million ounces of gold.

### **DETOUR LAKE GOLD MINE** - Detour Gold Corp. • gold producer • open pit

**Address** 86 2nd Street, P.O. Box 1325, Cochrane, ON POL 1CO

Tel: (647) 847-2089 | Fax: (705) 272-2558 | www.detourgold.com

Mine Manager David Londono, General Manager

**Production Rate** 291,000 tonnes per day

**Production** 2016 - 537,765 ounces of gold

2017 - 571,463 ounces of gold 2018 - 621,128 ounces of gold 2019 - 601,566 ounces of gold

2020 - 587,000 ounces of gold (guidance)

613,570,000 tonnes at 1.01 g/t containing 19,867,105 ounces of gold (Measured and Indicated - December 2018) Resources

Opened 2013

**Employment** 800 employees, 200 contractors

**Notes:** Detour's Life of Mine Plan extends to 2040 with average gold production of 659,000 ounces per year. The Detour Gold Corp. and Detour Lake mine are being acquired by Kirkland Lake Gold in a \$4.9-billion deal that is expected to close in January 2020. In 2020, a pre-feasibility study is planned for the Lower Detour Underground Zone, a large tonnage, low-grade Zone that extends beneath the current pit. Drilling in 2020 will focus on the 58N area of the mine.

### **EAGLE RIVER MINE** - Wesdome Gold Mines Ltd. • gold • underground

**Address** 93 Mission Road, P.O. Box 1520, Wawa, ON POS 1KO

Tel: (705) 856-2721 | Fax: (705) 856-2979 | www.wesdome.com

Mine Manager Dave Whiteway, General Manager

**Production Rate** 335 tonnes per day

**Production** 2016 - 40,252 ounces of gold

> 2017 - 50,996 ounces of gold 2018 - 67,315 ounces of gold 2019 - 88,617 ounces of gold

2020 - 91,500 ounces of gold (guidance)

Resources 1,157,000 tonnes at 11.70 g/t containing 435,300 ounces of gold (Measured and Indicated - December 2018)

Opened 1995 **Employment** 220

Notes: Eagle River Complex includes the Eagle River Mine and the Mishi mine and mill. In 2020, \$9.8 million in exploration at Eagle River is planned. The program will include 72,000 metres of underground exploration drilling, 47,000 metres of definition drilling and 33,500 metres of surface drilling. Five drill rigs will be deployed underground and two on surface.

### HOLLINGER MINE (PORCUPINE MINES) - Newmont Corp. • gold producer • open pit

**Address** 4315 Gold Mine Road, P.O. Box 70, South Porcupine, ON PON 1H0

Tel: (705) 235-6589 | Fax: (705) 235-6551 | www.newmont.com

Mine ManagerMarc Lauzier, Mine General Manager, Porcupine Mines OperationsProduction Rate12,000 tonnes per day (Porcupine Mines Operations combined)

**Production** 2016 - 277,000 ounces of gold (Porcupine Mines Operations combined) 2017 - 272,000 ounces of gold (Porcupine Mines Operations combined)

2018 - 259,000 ounces of gold (Porcupine Mines Operations combined)
2019 - 225,000 ounces of gold (management projection for Porcupine Mines Operations combined)

2020 - 325,000 ounces of gold (guidance for Porcupine Mines Operations combined)

**Resources** 492,730,000 tonnes at 1.04 g/t containing 16,540,000 ounces of gold

(Measured and Indicated - June 2018 for Porcupine Mines Operations combined)

**Opened** 2014

**Employment** 200 (approximate)

**Notes:** Porcupine Mines Operations include the Hoyle Pond, Hollinger, Borden and former Dome mines, several stockpiles and a mill. Hollinger Mine is located directly adjacent to downtown Timmins. Hollinger Mine is expected to operate until the first quarter of 2023. Newmont's Ontario gold mines were procured through its acquisition of Goldcorp in a US\$10 billion deal that closed Jan. 1, 2019. Newmont's Century Project, a proposed open-pit gold mine located on the site of the former Dome pit, is still in development and working through the environmental permitting phase. Plans for the Century Project include a 70,000-tonne-per-day pit and a new 70,000-tonne-per-day on-site milling complex.

### HOLLOWAY-HOLT MINE (HOLT COMPLEX) - Kirkland Lake Gold Ltd. • gold producer • underground

**Address** Highway 101 East, Box 609, Matheson, ON POK 1NO

Tel: (705) 567-4862 | Fax: (705) 567-4863 | www.klgold.com

**Mine Manager** Evan Pelletier, General Manager, Kirkland Lake Operations

**Production Rate** Holloway Area: 450 tonnes per day (capacity)

Holt Area: 1,500 tonnes per day (mine), 3,000 tonnes per day (mill)

**Production** Holloway Area:

2016 - 27,129 ounces of gold 2017 - 287 ounces of gold 2018 - 718 ounces of gold 2019 - See Holt Area 2020 - See Holt Area

Holt Area:

2016 - 57,086 ounces of gold 2017 - 66,677 ounces of gold 2018 - 67,770 ounces of gold

2019 - 113,952 ounces of gold (Holt Complex operations combined)

2020 – 130,000 ounces of gold (guidance for Holt Complex operations combined)

**Resources** Holloway Area: 2,452,000 tonnes grading 4.20 g/t, containing 328,000 ounces of gold

(Measured and Indicated - December 2018)

Holt Area: 10,473,000 tonnes grading 4.10 g/t, containing 1,385,000 ounces of gold

(Measured and Indicated - December 2018)

**Opened** Holloway Area: 2009

Holt Area: 2010

**Employment** Holloway Area: 116 (estimate)

Holt Area: 168

**Notes:** The Holt Mill processes ore from Holloway-Holt and Taylor Mines. At the start of 2019, reporting for Holloway-Holt and Taylor mines were combined into one segment, the Holt Complex. Holloway area resumed operations during the fist quarter of 2019. Operations at Holloway had been suspended since 2016.

### HOYLE POND MINE (PORCUPINE MINES) - Newmont Corp. • gold producer • underground

**Address** 4315 Gold Mine Road, P.O. Box 70, South Porcupine, ON PON 1HO

Tel: (705) 235-6589 | Fax: (705) 235-6551 | www.newmont.com

Mine Manager Marc Lauzier, General Mines Manager, Porcupine Mines Operations

Production Rate 1,000 tonnes per day, 12,000 tonnes per day (Porcupine Mines Operations combined)

**Production** 2016 - 277,000 ounces of gold (Porcupine Mines Operations combined)

2017 - 272,000 ounces of gold (Porcupine Mines Operations combined) 2018 - 259,000 ounces of gold (Porcupine Mines Operations combined)

2019 - 225,000 ounces of gold (management projection for Porcupine Mines Operations combined)

2020 - 325,000 ounces of gold (guidance for Porcupine Mines Operations combined)

**Resources** 492,730,000 tonnes at 1.04 g/t containing 16,540,000 ounces of gold

(Measured and Indicated - June 2018 for Porcupine Mines Operations combined)

**Opened** 1985

**Employment** 800 employees, 445 contractors (approximate figures for Porcupine Mines Operations combined)

**Notes:** Porcupine Mines Operations include the Hoyle Pond, Hollinger, Borden and former Dome mines, several stockpiles and a mill. In November 2019, SafeSight Exploration celebrated its 12-month, 100-flight anniversary using drones for underground mapping, surveying and inspections at Hoyle Pond. The drones can be operated remotely in areas that would be hazardous to workers and can conduct surveys and inspections at less risk and often faster than an employee.

### ISLAND GOLD MINE - Alamos Gold Inc. • gold producer • underground

**Address** 15 Goudreau Road, P.O. Box 456, Dubreuilville, ON POS 1BO

Tel: (705) 884-2805 | Fax: (815) 797-0166 | www.alamosgold.com

Mine Manager Jean Bastien

**Production Rate** 1,200 tonnes per day

**Production** 2016 - 83,323 ounces of gold

2017 - 98,800 ounces of gold 2018 - 105,800 ounces of gold

2019 - 140,000 ounces of gold (guidance) 2020 - 137,500 ounces of gold (guidance)

**Resources** 3,740,000 tonnes at 10.00 g/t containing 1,200,000 ounces of gold (Measured and Indicated - December 2018)

Opened 2007

**Employment** 341 employees, 217 contractors

**Notes:** Ore from Island Gold Mine is processed at the Kremzar Mill, located about 0.8 kilometres from the mine. Alamos Gold Mines is advancing a \$68-million expansion project at their Island Gold Mine near Wawa. A Phase 3 expansion study at Island Gold will be completed during the first half of 2020 that will examine increasing production rates beyond 1,200 tonnes per day. Approximately \$55 million in capital expenditures are planned at Island Gold in 2020. Capital projects include an expansion of the tailings facility and the construction of a new administration building, dry facility and underground workshop. Island Gold has a 2020 exploration budget of \$21 million that will include 76,000 metres surface and underground drilling in the Island Gold Main Zone and a 10,000-metre regional exploration project on the Island Gold property.

### MACASSA MINE - Kirkland Lake Gold Ltd. • gold producer • underground

Address 1350 Government Road West, P.O. Box 370, Kirkland Lake, ON P2N 3J1

Tel: (705) 567-5208 | Fax: (705) 568-6444 | www.klgold.com

**Mine Manager** Evan Pelletier, General Manager, Kirkland Lake Operations

**Production Rate** 1,000 tonnes per day (mine), 2,000 tonnes per day (mill capacity)

**Production** 2016 – 175,167 ounces of gold

2017 - 194,273 ounces of gold 2018 - 240,126 ounces of gold 2019 - 241,297 ounces of gold

2020 - 245,000 ounces of gold (guidance)

**Resources** 4,977,000 tonnes at 20.20 g/t containing 3,233,000 ounces of gold (Measured and Indicated - December 2018)

Opened 2002 Employment 900

**Notes:** Macassa's No. 4 Shaft Project began in 2018. The new shaft is expected to increase hoisting capacity to 4,000 tonnes per day. In 2019, the shaft project had expenditures of \$45 million. In 2022, Phase 1 of the shaft project will be completed, extending the shaft to a depth of 5,450 feet, and production will commence at a rate of 320,000 to 340,000 ounces per year. In Phase 2, the shaft will be sunk to the 7,000-foot level by the end of 2023, increasing production to 400,000 ounces per year. In 2020, 270,000 metres of drilling is planned at the mine, focused on infill and extension drilling at the SMC, evaluating targets at depth along the Amalgamated Break, and along the Main and '04 breaks.

### MISHI GOLD MINE - Wesdome Gold Mines Ltd. • gold producer • open pit

**Address** 93 Mission Road, P.O. Box 1520, Wawa, ON POS 1KO

Tel: (705) 856-2721 ext. 507 | Fax: (705) 856-2979 | www.wesdome.com

Mine Manager Dave Whiteway, General Manager

**Production Rate** 127 tonnes per day (mine), 900 tonnes per day (mill)

**Production** 2016 - 7,485 ounces of gold 2017 - 7,985 ounces of gold

2017 - 7,985 ounces of gold 2018 - 4,310 ounces of gold 2019 - 3,072 ounces of gold

2020 - 3,500 ounces of gold (guidance)

Resources 123,500 tonnes at 2.80 g/t containing 11,000 ounces of gold (Measured and Indicated - December 2018)

**Opened** 2012

**Employment** 40 (approximately)

**Notes:** Eagle River Complex includes the Eagle River Mine and the Mishi mine and mill. Wesdome has plans to increase the production rate at Mishi Mine from 400 to 900 tonnes per day over the next few years. Mineralization at Mishi is open to the west and at depth. No exploration drilling occurred at Mishi in 2019 and none is planned at Mishi in 2020.

### MUSSELWHITE MINE - Newmont Corp. • gold producer • underground

**Address** P.O. Box 7500, Thunder Bay, ON P7B 6S8

Tel: (807) 928-2200 | Fax: (807) 928-2067 | www.newmont.com

Mine Manager Don Burke, Mine General Manager

**Production Rate** 4,500 tonnes per day

**Production** 2016 - 261,000 ounces of gold

2017 - 236,000 ounces of gold 2018 - 205,000 ounces of gold

2019 - 37,167 ounces of gold (estimated) 2020 - 140,000 ounces of gold (guidance)

Resources 13,110,000 tonnes at 6.19 g/t containing 2,610,000 ounces of gold (Measured and Indicated - June 2018)

Opened 1997

**Employment** 380 employees and 332 contractors (estimate)

**Notes:** Musselwhite was placed on care and maintenance following a fire affecting the underground conveyor system at the mine on March 29, 2019. No injuries were reported but development progress was impacted. Production was not expected to resume until early 2020. Musselwhite Material Handling Project is now expected to be completed in mid-2020. The project involves installing a 5,000-tonne-per-day raisebore winze from the 1,250-metre level to the 250-metre level. The project is expected to increase production by 20 per cent and reduce costs by 10 per cent.

### RAINY RIVER MINE - New Gold Inc. • gold producer • underground, open pit

**Address** 5967 Highway 11/71, P.O. Box 5, Emo, ON POW IEO

Tel: (807) 482-0900 | www.newgold.com

 Mine Manager
 Eric Vinet, General Manager

 Production Rate
 24,000 tonnes per day

 Production
 2017 - 37,047 ounces of gold

2018 - 227,284 ounces of gold 2019 - 253,772 ounces of gold

2020 - 257,500 ounces of gold (estimated)

**Resources** 186,607,000 tonnes graded at 1.06 g/t gold and 3.22 g/t of silver, containing 6,324,000 ounces of gold

and 19,436,000 ounces of silver (Measured and Indicated - December 2018)

**Opened** 2017

**Employment** 682 employees

**Notes:** In 2019, 3,580 metres of exploration drilling were completed to test the potential repeats of mineralized lenses north of the Intrepid Zone. Results are still pending. Capital costs at Rainy River were ~\$190 in 2019 but are expected to decline in 2020 as construction is substantially complete. An updated life of mine plan for Rainy River is expected to be published in February 2020.

### RED LAKE GOLD MINE (RED LAKE GOLD MINES) - Newmont Corp. • gold producer • underground

**Address** 17 Mine Road, Bag 2000, Balmertown, ON POV 1CO

Tel: (807) 735-2077 | Fax: (807) 735-2765 | www.newmont.com

Mine Manager Bill Gascon, Mine General Manager

**Production Rate** 1,250 tonnes per day

**Production** 2016 - 324,000 ounces of gold

2017 - 209,000 ounces of gold

2018 - 276,000 ounces of gold (guidance)

2019 - 155,000 ounces of gold (estimate for Red Lake Gold Mines operations combined) 2020 - 277,869 ounces of gold (estimate for Red Lake Gold Mines operations combined)

Resources 14,490,000 tonnes at 9.83 g/t containing 4,580,000 ounces of gold (Measured and Indicated - June 2018)

Opened 1949

**Employment** 981 employees and contractors (Red Lake Gold Mines Operations combined)

Notes: Red Lake Mines operations include the Red Lake mine, including the Red Lake and Campbell areas, the Cochenour mine and the Campbell and Red Lake processing plants. The Red Lake mine began operations in 1949 and produced 23.6 million ounces to December 2018. In 2020, Newmont Goldcorp re-branded as Newmont Corp. Red Lake Gold Mines is currently being acquired by Evolution Mining Ltd. for US\$375 million, with up to an additional US\$100 million of payments contingent on resources. The deal is expected to close by the end of March 2020.

### **SUGAR ZONE GOLD MINE** - Harte Gold Corp. • gold producer • underground

113 Tukanee Lake Road, White River, ON POM 3GO **Address** 

Tel: (416) 368-0999 | Fax: (807) 822-2398 | www.hartegold.com

Mine Manager Gordon Reed, General Manager

**Production Rate** 575 tonnes per day

**Production** 2018 - 15,100 ounces of gold (pre-production estimate)

2019 - 27,316 ounces of gold

2020 - 45,000 ounces of gold (guidance)

Resources 4,243,000 tonnes at 8.12 g/t containing 1,108,000 ounces of gold (Measured and Indicated - April 2019)

Opened

**Employment** 200 workers (approximate)

Notes: A 54 to 76 per cent increase in production is expected at Sugar Zone in 2020 as a result of increased tonnage and higher grades. Capital expenditures in 2020 are forecast at \$29.7 million. Capital projects include Middle Zone ramp development and camp upgrades. In early 2020, a two-rig drill program will commence on the TT8 Zone of Sugar Zone with an initial focus on testing the down dip potential.

### TAYLOR MINE (HOLT COMPLEX) - Kirkland Lake Gold Ltd. • gold producer • underground

**Address** Highway 101 East, P.O. Box 609, Matheson, ON POK 1NO

Tel: (705) 567-4862 | Fax: (705) 567-4863 | www.klgold.com

Mine Manager Evan Pelletier, General Manager, Kirkland Lake Operations

**Production Rate** 590 tonnes per day

**Production** 2016 - 42,639 ounces of gold

> 2017 - 50,764 ounces of gold 2018 - 58,633 ounces of gold

2019 - 52,500 ounces of gold (guidance) 2020 - 130,000 ounces of gold (guidance for

Holt Complex operations combined)

1,577,000 tonnes at 4.90 g/t containing 250,000 ounces of gold (Measured and

Indicated - December 2018)

Opened 2015 **Employment** 60

Resources

**Notes:** The Holt Complex includes the Taylor mine, Holloway-Holt mine and Holt mill. Ore from Taylor mine is processed at Holt mill. In 2019, a 44,000-metre drilling program was conducted at Taylor focused on the 1004 Zone and West Porphyry Deposit.





IBK Capital is an independent and privately owned investment banking firm which offers a full range of financial advisory services to Minerals Exploration and Mining companies.

The Exchange Tower, 130 King St. W, Suite 640 Toronto, ON, Canada M5X 1E4

Tel: (416) 360-4505

www.IBKCapital.com

### TIMMINS WEST MINE - Pan American Silver Corp. - Tahoe Canada • gold producer • underground

**Address** 1515 Government Road South, Timmins, ON P4R 1N4

Tel: (705) 269-4344 | Fax: (705) 268-1794 | www.panamericansilver.com

Mine Manager Bill Curry

**Production Rate** 3,300 tonnes per day (mine), 4,400 tonnes per day (mill)

**Production** 2016 – 162,000 ounces (estimate for Bell Creek and Timmins West mines combined)

2017 - 167,000 (Bell Creek and Timmins West mines combined)

2018 – 167,500 (guidance for Bell Creek and Timmins West mines combined) 2019 – 157,500 (guidance for Bell Creek and Timmins West mines combined) 2020 – 172,500 (guidance for Bell Creek and Timmins West mines combined)

Resources 17,000,000 tonnes at 3.27 g/t containing 1,787,000 ounces of gold (Measured and Indicated - June 2019)

**Opened** 2011

**Employment** 650 employees, 70 contractors (Timmins West and Bell Creek combined)

**Notes:** Ore from Timmins West Mine is processed at the Bell Creek Mill. Timmins West and Bell Creek are expected to operate through 2025. A shaft upgrade to 1,080 metres was completed at Timmins West in 2019 that is expected to reduce costs in 2020. In November 2019, Pan American Silver announced they no longer intended to sell Timmins West and Bell Creek mines.

### WILLIAMS MINE (HEMLO MINE) - Barrick Gold Corporation • gold producer • underground, open pit

**Address** P.O. Bag 11, Marathon, ON POT 2E0

Tel: (807) 238-1041 | Fax: (807) 238-1019 | www.barrick.com

Mine Manager Ian Butler, General Manager Production Rate 11,500 tonnes per day

**Production** 2016 - 235,000 ounces of gold

2017 - 196,000 ounces of gold 2018 - 171,000 ounces of gold 2019 - 213,000 ounces of gold

2020 - 207,300 ounces of gold (guidance)

**Resources** 61,572,000 tonnes at 1.77 g/t containing 3,498,000 ounces of gold (Measured and Indicated - December 2018)

**Opened** 1985

**Employment** 620 workers (estimate)

**Notes:** In October 2019, Barrick announced the open-pit at Hemlo would be phased out and that underground mining would move to a contract mining model. This optimization will extend the operations life of mine. Currently, most of the resources and underground mill feed comes from the C-Zone at Hemlo. In 2019, exploration drilling at Hemlo confirmed down plunge extensions of C-Zone and additional C-Zone extension drilling is planned for early 2020.

### YOUNG-DAVIDSON MINE - Alamos Gold Inc. • gold producer • underground

**Address** Highway 566, P.O. Box 187, Matachewan, ON POK 1MO

Tel: (705) 565-9800 | Fax: (705) 565-2387 | www.alamosgold.com

Mine Manager Luc Guimond, General Manager

**Production Rate** 7,000 tonnes per day

**Production** 2016 - 170,041 ounces of gold

2017 - 200,000 ounces of gold 2018 - 180,000 ounces of gold

2019 - 185,000 ounces of gold (guidance) 2020 - 152,500 ounces of gold (guidance)

**Resources** 51,058,000 tonnes at 2.82 g/t containing 4,624,912 ounces of gold (Measured and Indicated - December 2018)

**Opened** 2012 (open pit), 2013 (underground) **Employment** 630 employees, 136 contractors

**Notes:** Decreased production at Young-Davidson is expected in 2020 in order to allow for the completion of the tie-in of the upper and lower mines, which is expected to occur from March to June 2020. During this downtime, ore will be trucked to surface from the upper mine at a rate of approximately 2,500 tonnes per day. A total 10,500 metres of underground exploration drilling is planned at Young-Davidson in 2020. Drilling will explore the down-dip extension of the Young-Davidson ore body, below current Mineral Resources.

# **OTHER METAL MINES**

### KIDD CREEK MINE - Glencore PLC • zinc, copper, lead, silver, cadmium, indium, sulphuric acid • underground

**Address** 11335 Highway 655 North, P.O. Bag 2002, Timmins, ON P4N 7K1

Tel: (705) 264-5200 | Fax: (705) 267-8709 | www.glencore.com | www.kiddoperations.ca

Mine Manager Mark Furlotte, General Manager, Kidd Operations

**Production Rate** 7,900 tonnes per day

**Production** 2016 - 38,300 tonnes copper, 78,500 tonnes zinc, 2,292,000 ounces of silver

> 2017 - 39,900 tonnes copper, 72,400 tonnes zinc, 2,271,000 ounces of silver 2018 - 33,600 tonnes copper, 65,900 tonnes zinc, 1,893,000 ounces of silver

2019 - 32,000 tonnes copper, 62,400 tonnes zinc, 2,025,497 ounces of silver (estimate) 2020 - 38,000 tonnes copper, 62,900 tonnes zinc, 2,025,497 ounces of silver (estimate)

Resources 10,000,000 tonnes at 1.90 per cent copper, 4.20 per cent zinc and 48.00 g/t silver

(Measured and Indicated - December 2018)

Opened

**Employment** 850 (employees and contractors)

Notes: Kidd Creek is the world's deepest base metal mine below sea level. The company is currently mining the 9,600-foot level and the shaft extends to 9,889 feet. The mine life at Kidd is expected to continue through 2022.

### LAC DES ILES MINE - Impala Platinum Holdings Ltd. - Impala Canada Ltd. • platinum group metals • underground, open pit

P.O. Box 10547, Thunder Bay, ON P7B 6T9 **Address** 

Tel: (807) 448-2000 | Fax: (807) 448-2001 | www.nap.com

Mine Manager Bryan Wilson, General Manager

**Production Rate** 6,755 tonnes per day (underground), 8,984 tonnes per day (mill) **Production** 2016 - 158,481 ounces of palladium, 10,230 ounces of platinum 2017 - 208,923 ounces of palladium, 12,267 ounces of platinum

2018 - 242,686 ounces of palladium, 16,368 ounces of platinum

2019 - 227,500 ounces of palladium, 17,000 ounces of platinum (estimate) 2020 - 208,000 ounces of palladium, 18,000 ounces of platinum (estimate)

Resources 72,982,000 tonnes at 2.14 g/t palladium, 0.21 g/t platinum, 0.16 g/t gold, 0.06 per cent copper and

0.07 percent nickel (Measured and Indicated - July 2018)

Opened 1993 (open pit), 2006 (underground)

**Employment** Over 700 (employees)

Notes: Ore from Lac des Iles Mine is shipped to Vale's Sudbury Operations for refining. North American Palladium, including Lac des Iles mine, was acquired by Impala Platinum Holdings (Implats) in a \$930-million deal that closed Dec. 13, 2019. The mine is now operated as the Implats subsidiary Impala Canada Ltd. Underground rates at the mine will be ramped up to 12,000 tonnes per day by 2021. In 2019, underground exploration drilling was conducted at C Zone, Offset Satellite (B Zone and Mystery Zone) and Roby-Offset while surface drilling was conducted in the East Mine Block. Near-mine exploration continues at Sunday Lake, with 7,300 metres of drilling conducted in 2019.





20 BINNINGTON COURT, KINGSTON, ONTARIO | K7M 8S3 Phone: 613-531-9950 www.lamontagnegeophysics.com

### MCCREEDY WEST MINE - KGHM International Ltd. • nickel, copper, platinum, palladium • underground

**Address** 4 Mine Road, P.O. Box 40, Levack, ON POM 2C0

Tel: (705) 966-5112 | Fax: (705) 966-5386 | www.kghm.com

Mine Manager Steve Dunlop, General Manager

**Production Rate** 2,425 tonnes per day

**Production** 2016 – 2,100 tonnes nickel, 14,400 tonnes copper, 46,000 ounces of precious metals

2017 – 1,100 tonnes nickel, 9,400 tonnes copper, 38,000 ounces of precious metals 2018 – 900 tonnes nickel, 7,400 tonnes copper, 30,500 ounces of precious metals

2019 – 1,700 tonnes nickel, 1,300 tonnes copper, 4,115 ounces of precious metals (estimate) 2020 – 1,700 tonnes nickel, 1,300 tonnes copper, 4,115 ounces of precious metals (estimate).

Resources 12,972,000 tonnes at 0.91 per cent copper, 1.25 per cent nickel, 0.17 g/t platinum, 0.23 g/t palladium and

0.07 g/t gold containing 118,467 tonnes copper, 161,773 tonnes nickel, 68,867 ounces platinum,

93,977 ounces palladium and 29,707 ounces gold (Sudbury Operations Total Measured and Indicated - December 2014)

Opened 2004

**Employment** 208 workers (estimate)

**Notes:** McCreedy ore is processed at Vale's Clarabelle Mill in Sudbury. In 2019, KGHM Sudbury operations transitioned from mining the Morrison mine to the McCreedy West mine, which had been on care and maintenance since 2015. In 2019, KGHM's Victoria project, a planned underground copper-nickel mine located 35 kilometres west of Sudbury, was submitted to the Canadian Environmental Assessment Agency (CEAA) for comment and it was determined that an environmental assessment would not be required.

### SUDBURY OPERATIONS - VALE - Coleman Mine, Copper Cliff North Mine, Creighton Mine, Garson Mine,

Totten Mine Vale S.A • nickel, copper, cobalt, platinum group metals, gold, silver, sulphuric acid, liquid sulphur dioxide • underground

**Address** Copper Cliff, ON POM 1NO

Tel: (705) 682-4211 | Fax: (705) 682-5319 | www.vale.com

**Production Rate** 35,000 tonnes per day (Clarabelle Mill capacity)

Production 2016 - 80,400 tonnes nickel, 121,600 tonnes copper, 882 tonnes cobalt, 98,000 ounces of gold,

322,000 ounces of palladium, 166,000 ounces platinum, 2,165,000 ounces silver

2017 - 61,900 tonnes nickel, 98,300 tonnes copper, 840 tonnes cobalt, 74,000 ounces of gold, 214,000 ounces of palladium, 144,000 ounces platinum 1,785,440 ounces of silver (estimate) 2018 - 50,600 tonnes nickel, 72,300 tonnes copper, 520 tonnes cobalt, 84,717 ounces of gold, 218,000 ounces of palladium, 135,000 ounces platinum, 1,339,080 ounces of silver (estimate) 2019 - 58,000 tonnes nickel, 93,394 tonnes copper, 626 tonnes cobalt, 72,611 ounces of gold, 203,300 ounces of palladium, 145,220 ounces platinum, 1,331,427 ounces of silver (estimate) 2020 - 59,840 tonnes nickel, 114,478 tonnes copper, 612 tonnes cobalt, 92,916 ounces of gold, 260,200 ounces of palladium, 223,000 ounces platinum, 1,300,819 ounces of silver (estimate)

Resources 61,700,000 tonnes at 1.40 per cent nickel, 1.78 per cent copper, 0.03 per cent cobalt, 1.20 g/t platinum,

1.50 g/t palladium, 0.50 g/t gold (Measured and Indicated - December 2018)

**Employment** Nearly 4,000 (Vale Sudbury Operations total workforce)

**Notes:** Vale Ontario Operations include five active mines, the Clarabelle mill, the Copper Cliff smelter/refinery complex and the Port Colborne cobalt refinery. Work at Vale's \$750-million Copper Cliff Deep mine expansion project in Sudbury is expected to be completed by 2021. The mine will employ more than 400 workers when in operation. Vale is currently conducting a feasibility study for a Phase 2 expansion of Copper Cliff Deep that would incorporate additional deposits from the Kelly Lake area into the mine.

### **COLEMAN MINE**

Mine Manager Brent Salem

**Production Rate** 618,000 tonnes per year

**Opened** 1992

### **COPPER CLIFF NORTH MINE**

Mine Manager Franco Cazzola

**Production Rate** 746,000 tonnes per year

Opened 1886

### **CREIGHTON MINE**

Mine Manager Alan Vermeersch

**Production Rate** 608,000 tonnes per year

1902 Opened

### **GARSON MINE**

Rick Filion Mine Manager

655,000 tonnes per year **Production Rate** Opened 1907-1986; 1994 (reopened)

### **TOTTEN MINE**

Mine Manager John Ryan

**Production Rate** 710,000 tonnes per year

Opened 2014

### SUDBURY OPERATIONS - GLENCORE - Fraser Mine, Nickel Rim South Mine - Glencore PLC • nickel, copper, cobalt, platinum

group metals, sulphuric acid • underground

**Address** 6 Edison Road, Falconbridge, ON POM 1SO

Tel: (705) 693-2761 | Fax: (705) 966-6530 | www.glencore.com

**Production Rate** 6,670 tonnes per day

**Production** 2016 - 24,127 tonnes nickel, 48,150 tonnes copper, 505 tonnes cobalt

> 2017 - 22,928 tonnes nickel, 40,427 tonnes copper, 480 tonnes cobalt (estimate) 2018 - 22,806 tonnes nickel, 38,831 tonnes copper, 477 tonnes cobalt (estimate) 2019 - 22,806 tonnes nickel, 38,831 tonnes copper, 477 tonnes cobalt (estimate) 2020 - 18,336 tonnes nickel, 12,240 tonnes copper, 264 tonnes cobalt (estimate)

Resources 28,900,000 tonnes at 2.00 per cent nickel, 2.30 per cent copper, 0.05 per cent cobalt, 1.02 g/t palladium,

0.90 g/t platinum (Measured and Indicated - December 2018)

**Employment** 1,300 employees, 500 contractors (approximate)

Notes: Glencore's Sudbury Integrated Nickel Operations consist of the Nickel Rim South and Fraser underground mines, the Strathcona Mill and the Sudbury Smelter. Glencore's Sudbury production is shipped to the company's Nikkelverk refinery in Norway for further processing. The Nickel Rim South Mine is currently Sudbury's largest mining operation, producing approximately 14,000 tonnes of nickel a year. The company's Onaping Depth Project in Sudbury is currently in construction. The deposit extends to a depth of 2,600 metres and will be Glencore's deepest mine. First ore production is expected in 2023 and full production is expected in 2025. The mine life at Glencore's Sudbury Integrated Nickel Operations currently extends through 2034.

### **FRASER MINE**

Manager Gary Potts, Mine Director **Production Rate** 702,631 tonnes per year

Opened 1968

### **NICKEL RIM SOUTH MINE**

Manager Christian Bruneau, Director **Production Rate** 1,299,590 tonnes per year

Opened 2010

### **TOMCLID IRON MINE** - Ferromin Inc. • iron as magnetite • quarry

**Address** South Canonto Township, ON

www.ferromininc.com

**Production** 2016 - 8,000 tonnes of ore (approximate)

2017 - 15,000 tonnes of ore (approximate)

2018 - O tonnes of ore 2019 - not available 2020 - not available

**Resources** Three million tonnes averaging 40 per cent Fe (1993); reserves estimate has not been adjusted to reflect

production from the deposit

**Opened** 1997 (reopened on an "as-needed basis")

**Notes:** Production was restarted in late 1997 by Tomclid Iron Mines Ltd. and operations have continued on an as-needed basis by Ferromin Inc. Magnetite is mined and crushed as high-density aggregate for use in heavy concrete applications including radiation shielding.

# DIAMOND MINES

### VICTOR DIAMOND MINE - De Beers Canada Inc. • diamond • open pit

**Address** 119 Pine Street South, Suite 310, Timmins, ON P4N 2K3

Tel: (705) 268-0988 | Fax: (705) 268-0179 | canada.debeersgroup.com

Mine Manager Alistair Skinner, Manager of Operations

 Production Rate
 7,400 tonnes per day

 Production
 2016 - 596,000 carats

 2017 - 724,000 carats
 2018 - 936,000 carats

2019 - 421,000 carats 2020 - 0 carats (closed)

**Resources** 1,400,000 tonnes at 0.21 carats per tonne containing 338,000 carats of diamonds

(Measured and Indicated - December 2017)

**Opened** 2008

**Employment** 170 employees, 134 contractors (at closure)

**Notes:** Victor Mine is one of 18 kimberlite pipes discovered on the property, 16 of which are diamondiferous. Victor opened in 2008 and was Ontario's first diamond mine. In 2019, the final load of ore was trucked from Victor pit on March 5, stockpile was processed until May 25, and plant shutdown was completed by June. Eighty staff continue to work at Victor in reclamation. Site takedown and environmental monitoring is expected to take three to five years after mining ceased.

# **Major Industrial Mineral Producers**

### **Blue Mountain Operations**

Covia Canada Ltd.

• nepheline syenite • open pit (Mining Act)

Location Methuen Township **Address** P.O. Box 2000

Havelock, ON KOL 1ZO

Contact Alex Vanags, P.Eng., Plant Manager

(705) 877-2500 ext. 645

Employees 230

### **Goderich Evaporator Plant**

Compass Minerals Canada Corp.

• salt in brine (Oil, Gas and Salt Resources Act)

Location Goderich Township **Address Evaporation Plant** 

> P.O. Box 100 245 Regent Street Goderich, ON N7A 3Y5

**Contact** (519) 524-8338

Employees 90

### **Goderich Salt Mine**

Compass Minerals Canada Corp.

rock saltunderground (Mining Act)

Location Goderich Township

**Address** P.O. Box 370

300 North Harbour Road Goderich, ON N7A 3Y9

**Contact** (519) 524-8351

Employees 380

### **Hagersville Mine**

Gebr. Knauf KG

gypsum • underground (Mining Act)

Oneida Township Location **Address** P.O. Box 99

Hagersville, ON NOA 1HO

**Contact** (905) 768-3331

**Employees** 44

### **Ojibway Mine**

K+S Windsor Salt Ltd.

• rock salt • underground (Mining Act)

Location Windsor - Sandwich Township Address

P.O. Box 7008 200 Morton Drive

Windsor, ON N9J 3W9

Contact (519) 966-2142

Employees 206

### **Penhorwood Mine**

### **IMERYS Talc**

• talc • open pit (Mining Act) • primary

plant • micronising plant

Quarry and primary Location

> processing plant -Penhorwood Township

Micronising plant - Timmins

**Address** 100 Water Tower Road Timmins, ON P4N 7J5

Contact (705) 268-2208 **Employees** 65 (130 at peak)

### St. Lawrence Mine

### **Canadian Wollastonite**

• wollastonite • open pit (Mining Act)

• diopside • granite aggregate

Location Seeleys Bay (Kingston)

**Address** 6675 Highway 15

Seeleys Bay, ON KOH 2NO

Contact (613) 387-2734,

Bob Vasily: (613) 387-2734

ext. 101 Bob.Vasily@

canadianwollastonite.com

**Employees** summer - 16, winter - two

### **Tatlock Quarry**

### **OMYA (Canada) Inc.**

• calcium carbonate • open pit (Aggregate

Resources Act)

Location Tatlock Quarry

(Darling Township)

Plant - Perth

**Address** P.O. Box 245

Perth, ON K7H 3E4

Contact (613) 267-5367

Employees 400

### Windsor Evaporation Facility

### K+S Windsor Salt Ltd.

• salt in brine (Oil, Gas and Salt Resources Act)

Windsor - Sandwich Location

Township

Address **Evaporation Plant** 

P.O. Box 7008 30 Prospect Avenue Windsor, ON N9C 3G3

(519) 255-5404 Contact

Employees 92

Other Industrial Mineral

**Producers** 

### **Spanish River Carbonatite**

### **Boreal Agrominerals Inc.**

• carbonatite, vermiculite • open pit

(Aggregate Resources Act)

Location Venturi Township

Address Suite 206.

> 57 Mill Street North Brampton, ON L6X 1S9

Contact (905) 456-5436

Website www.borealagrominerals.ca

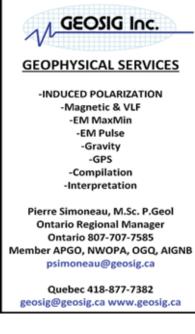
Employees 15

# **Gemstone and Mineral Specimen Mines and Quarries**

Producers	Products	General Information
Amethyst Mine Panorama - Precious Purple Gemstones/ Am	ethyst Gift Centre	
Steve and Tim Lukinuk 400 Victoria Avenue East, Thunder Bay, ON P7C 1A5 (807) 622-6908 info@amethystmine.com www.amethystmine.com	<ul> <li>specimens</li> <li>decorative stone</li> <li>landscaping stone</li> <li>slabbing and tumbling stone</li> <li>jewelry, giftware, carvings</li> <li>faceted gem stones</li> </ul>	McTavish Township Tourist attraction • pick your own site • mine tours
AquaRose Gems and Minerals - Beryl Pit/Rose Quartz Pit		
Dave Patterson 1327 Lower Craigmont Road, RR 2, Combermere, ON KOJ 1LO (613) 756-1361 berylpit@nexicom.net	<ul> <li>mineral specimens</li> <li>decorative stone</li> <li>landscaping stone</li> <li>slabbing &amp; tumbling stone</li> <li>quartz, feldspar, 35 accessory minerals in a complex pegmatite</li> </ul>	Lyndoch Township Tourist attraction • fee for collecting site • mine tours
Assiniboia Amethyst Mine		
Paul and Thelma Smitham Wawa, ON (705) 856-4221 (winter) (705) 852-0686 (summer) www.assiniboiaamethystmine.weebly.com	mineral specimens	McTavish Township
Auralite 23 Mine (Amethyst)		
Howard Pilsmaker Thunder Bay, ON (807) 629-4300 auralite@hotmail.com www.auralite23canada.com	<ul> <li>mineral specimens</li> <li>polished and tumbled stone</li> <li>jewelry</li> <li>tiles and countertop stone</li> </ul>	Tartan Lake Area Tourist attraction • guided tours available
Blue Points Amethyst Mine		
Lyndon Swanson 5 Road North, Pearl, ON POT 2MO (218) 409-1584 (winter) (807) 629-1127 (summer) lynswan1@lakenet.com	• specimens • decorative stone	McTavish Township Tourist attraction • pick your ow site
Boulder Creek Amethyst Quarry		· 
Chuck Anderson 27 3rd Street, Nipigon, ON POT 2JO (807) 887-2615 bouldercreek@shaw.ca http://mininglifeonline.net/company_page_487.html	• specimens • giftware	McTavish Township

Producers	Products	General Information
Diamond Willow Amethyst Mine		
Brandon Leroux and Carol Fayle 5 Road North, Pearl, ON (807) 627-5515 diamondwillowamethyst@hotmail.com https://m.facebook.com/Diamond-Willow-Amethyst- Mine-961765537215664/	<ul> <li>specimens</li> <li>decorative stone</li> <li>landscaping stone</li> <li>slabs</li> <li>tumbling stone</li> <li>jewelry</li> </ul>	McTavish Township Tourist attraction • pick your own site • mine tours
Princess Sodalite Mine (operation: May 1 to October 12)		
Andy Christie Rock Shop and Rock Farm 31241 Highway 28 East, Bancroft, ON KOL 1CO (613) 332-8274 Andy@PrincessSodaliteMine.ca http://www.princesssodalitemine.ca/	<ul><li>specimens</li><li>decorative stone</li><li>landscaping stone</li><li>giftware</li><li>jewelry</li></ul>	Bancroft Tourist attraction • pick your own site
Purple Haze Mine (Amethyst) Michael and Sandra Grieve 22 Knight Street, Thunder Bay, ON P7A 5M2 (807) 345-6444 info@purplehazeamethyst.com www.purplehazeamethyst.com	<ul><li>specimens</li><li>giftware</li><li>jewelry</li><li>landscaping stone</li><li>decorative stone</li></ul>	Tar <b>tan Lake Area</b>
Windy Ridge Amethyst Quarry		
Larry Kowtuski 71 Stover Street South, Norwich, ON NOJ 1PO (519) 468-3090 windyridge@live.ca	<ul><li>specimens</li><li>giftware</li><li>garden rock</li></ul>	McTavish Township







# **Lime and Specialty Limestone Producers**

### **Beachville Operations**

### Carmeuse Lime (Canada) Limited

• limestone: agricultural lime, crushed • high calcium lime • hydrator

**Location** Zorra Township

Address 3746-81 37th Line, Oxford County Road 6

Ingersoll, ON N5C 3K5

**Contact** (519) 423-6283 **Website** www.carmeusena.com

Employees 175

### **Blair Quarry**

### A.L. Blair Construction Ltd.

• limestone: agricultural lime, crushed

**Location** Finch Township

**Address** 7 Labrosse Street, P.O. Box 220

Moose Creek, ON KOC 1W0

**Contact** (613) 538-2271 (head office) **Website** www.alblairconstruction.com

Employees 10

### **Bucke Quarry**

### Miller Minerals (Division of Miller Paving Co.)

• limestone: crushed, agricultural lime

**Location** Bucke Township **Address** P.O. Box 248

New Liskeard, ON POJ 1PO

**Contact** (705) 672-2282

**Employees** Six

### **Dundas Operations**

### Carmeuse Lime (Canada) Limited

• dolomitic lime

**Location** Town of Flamborough

West Flamborough Township

Address 600 Highway 5, Gate 1, Building 13, P.O. Box 2029

Dundas, ON L9H 5E2

**Contact** (905) 628-8800

**Website** www.carmeusena.com/locations/dundas-operation

Employees 53

### **Dundas Quarry**

### Lafarge Canada Inc.

• dolostone: crushed • metallurgical grade limestone

**Location** Town of Flamborough

West Flamborough Township

628 Highway 5

Dundas, ON L9H 5E2

(905) 527-2744, (905) 527-3671

**Website** www.lafarge.ca/en

**Employees** 85

**Address** 

Contact

### **Meldrum Bay Quarry**

### Lafarge Canada Inc.

• dolostone: crushed • metallurgical and chemical stone, aggregate

**Location** Dawson Township, Manitoulin Island

**Address** 95 Mississauga Lighthouse Road, P.O. Box 6

Meldrum Bay, ON POR 1RO

**Contact** (705) 283-3011

### **Northern Operation**

### Carmeuse Lime (Canada) Limited

• high calcium lime (limestone quarried in Michigan, plant in Blind River)

**Location** Blind River

**Address** Highway 17 East, P.O. Box 1690

Blind River, ON POR 1BO

**Contact** (705) 849-2201 **Website** www.carmeusena.com

Employees 26

### **Sydenham Quarry**

### **E.C. King Contracting Division of Miller Paving**

• dolostone: crushed • dolomitic lime **Location** Sydenham Township

**Address** 2125 20th Avenue East, P.O. Box 457

Owen Sound, ON N4K 5P7

**Contact** (519) 376-6140

## **Trap Rock Producers**

#### **Armstrong Quarry**

#### **AECON Mining Inc.**

• basalt • diabase

Location Armstrong, Ontario Address Aecon Mining Inc.

c/o Fudge & Associates

160 Brvan Road

North Bay, ON P1C 1C2

**Contact** (705) 472-3053

#### **Bridgewater Trap Rock Mine**

#### **Danford Granite Ltd.**

• gabbro • mineral wool raw material, high-performance aggregate, railway ballast, filter stone

Location Elzevir Township (northeast of Madoc) Address

P.O. Box 749, 326 Durham Street

Madoc, ON KOK 2KO (613) 473-2468

**Contact** info@danfordconstructionltd.com

Website www.danfordconstructionltd.com

#### **Havelock Quarry**

#### **Drain Bros. Excavating Ltd.**

• basalt • rail ballast, rock wool, high-quality asphalt Location Belmont Township (east of Havelock)

Quarry - 6830 Highway 7, Belmont-Havelock

#### **Mailing address**

2130 8th Line Road North Douro-Dummer, ON KOL 2HO

(705) 639-2301 Contact

info@drainbros.ca

#### **Hillsport Quarry**

#### **AECON Mining Inc.**

• diabase • mineral wool raw material, high-performance aggregate, railway ballast, filter stone

Location Hillsport, Ontario **Address** Aecon Mining Inc.

c/o Fudge & Associates

160 Bryan Road

North Bay, ON P1C 1C2

Contact (705) 472-3053

#### I.K.O. Quarry

#### I.K.O. Industries Ltd.

• andesite • roofing granules, HL-1 aggregate

Location Madoc Township

P.O. Box 839, 105084 Highway 7 Address

Madoc, ON KOK 2KO

**Contact** (613) 473-0430

#### **Iroquois Falls Quarry**

#### **AECON Mining Inc.**

• basalt • gabbro • diabase

Location Iroquois Falls, Ontario Address Aecon Mining Inc.

> c/o Fudge & Associates 160 Bryan Road

North Bay, ON P1C 1C2

Contact (705) 472 3053

#### **MRT Traprock**

#### MRT Aggregates Inc.

• gabbro • HL-1, DFC, OFC, SMA, FC-1, FC-2 • railway ballast

Location Methuen Township Address c/o MRT Aggregates Inc. 4999 County Road 46 Havelock, ON KOL 1ZO

Contact (705) 877-8423

#### **Ontario Trap Rock Quarry**

#### **Ontario Trap Rock Ltd.**

• diabase • mineral wool raw material, high-performance aggregate, railway ballast, filter stone

Location **Bruce Mines** 

Address 9630 King's Highway 17

Bruce Mines, ON POR 1CO

Contact (705) 785-3833

#### **Smelter Bay Aggregates Quarry (owned by** Lafarge)

#### **Smelter Bay Aggregates**

• diabase • construction aggregate, abrasives, roofing granules Location Nestorville (five kilometres west of Thessalon)

Address Boundary Road Industrial Park, P.O. Box 400

Thessalon, ON POR 1LO

(705) 842-2597 Contact

### **Brick Producers**

#### **Brampton Brick Ltd.**

• shale • clay brick

**Address** 225 Wanless Drive

Brampton, ON L7A 1E9

**Contact** (905) 840-1011

www.bramptonbrick.com

#### **Cheltenham Quarry**

**Location** Brampton, Chinguacousy Township

#### **Hungry Hollow Quarry (Inactive)**

**Location** Lambton Shores, West Williams Township

**Employees** 68

#### Jazbrick Group (formerly Century Brick)

• shale • clay brick

Address 22 Airport Road

Brantford, ON N3T 5R7

**Contact** (416) 741-4498 or 1 (888) 772-8099

www.jazbrick.com

#### **Georgetown Quarry**

**Location** Esquesing Township

# Meridian Brick Ltd. (formerly Forterra Brick, Hanson Brick)

• shale • clay brick

Address 5155 Dundas Street West

Burlington, ON L7R 3Y2

**Contact** 1 (800) 263-6229, (905) 335-3401

jan.jensen@meridianbrick.com

#### **Aldershot Quarry**

**Location** City of Burlington, East Flamborough Township

#### **Burlington Quarry**

**Location** City of Burlington, Nelson Township

#### Niagara-on-the-Lake Quarry

**Location** Niagara Township

**Employees** 150-175

# **Cement Producers' Quarries**

#### **Bath Quarry**

#### Lafarge Canada Inc.

• limestone • cement

**Location** Ernestown Township **Address** Highway 33, P.O. Box 160

Bath, ON KOH 1GO

**Contact** (613) 352-7711

**Employees** 110 at the plant and 10 at the quarry

#### **Bowmanville Quarry**

#### St. Marys Cement Inc.

• limestone • cement

**Location** Darlington Township **Address** 400 Waverley Road South

Bowmanville, ON L1C 3K3

**Contact** (905) 623-3341

**Employees** 117 at the plant and 18 at the quarry

# Ogden Point Quarry CRH Canada Group Inc.

#### cki i canada Group inc

• limestone • cement

**Location** Cramahe Township (quarry); plant in Mississauga **Address** 176 Victoria Beach Boulevard, P.O. Box 160

Colborne, ON KOK 1SO

**Contact** (905) 355-2534 **Website** www.crhcement.com

**Employees** 160 at the plant and 21 at the quarry

#### **Picton Quarry**

#### **Lehigh Cement (Heidelberg Cement Group)**

• limestone • cement

**Location** Sophiasburg Township **Address** 1370 Highway 49 South

Picton, ON KOK 2TO (613) 476-3233

**Contact** (613) 476-3233

Kreg Roblin, kreg.roblin@lehighhanson.com

Website www.lehighhanson.com

**Employees** 136

#### St. Marys Quarry

#### St. Marys Cement Inc.

• limestone • cement

**Location** Blanshard Township

Address 585 Water Street South, P.O. Box 1000

St. Marys, ON N4X 1B6

**Contact** (519) 284-1020

**Employees** 115-120 at the plant and eight at the quarry

#### **Federal White Cement**

• cement (they purchase limestone from Lafarge's Carmeuse quarry)

Address P.O. Box 1609

Woodstock, ON N4S 0A8

Contact (519) 485-5410

Employees 50-60

#### A and A Natural Stone Ltd.

**Address** Concession 17 Keppel Township, RR 1

P.O. Box 967, Wiarton, ON NOH 2TO

Dawn Forbes, Manager Contact

Tel: (519) 534-5966 | (519) 534-5540

Fax: (519) 534-2435

aanaturalstone@forbessandandgravel.ca

Quarries Keppel Township (Owen Sound)

#### **Allstone Quarry Products Inc.**

**Address** 16105 Highway 27, Schomberg, ON LOG 1T0

Contact Peter Melo

Tel: (905) 939-8491 | 1 (800) 263-1270

Fax: (905) 939-2797 | info@allstonequarry.com

Website www.allstonequarry.com

Quarries Bigwood Township (near Sudbury)

#### **Agua Rose Gems and Minerals**

**Address** 1327 Lower Craigmont Road

RR 2 Combermere, ON KOJ 1LO

Contact Dave Patterson

Tel: (613) 756-1361 | berylpit@nexicom.net

**Quarries** Lyndoch Township (near Bancroft)

#### **Arriscraft International Inc.**

**Address** 875 Speedsville Road, P.O. Box 3190

Cambridge, ON N3H 4S8

**Contact** Trevor Cochrane | trevor.cochrane@arriscraft.com

> Tel: (519) 653-3275 | 1 (800) 265-8123 Fax: (519) 653-1337 | solutions@arriscraft.com

Website www.arriscraft.com

**Quarries** Albemarle Township (near Owen Sound)

#### **Attia Quarries**

**Address** 6 Satchell Boulevard, Toronto, ON M1C 3B4

**Contact** Eid Attia | eidattia3@gmail.com

Tel: (416) 286-7233 | (705) 325-5068 (416) 453-2978 | Fax: (416) 286-5693

Website www.attiaquarry.com

**Quarries** 6414 County Road 169, Rama Township

**Employees** Four

#### **Birkendale Natural Stone**

**Address** 144 Stephenson Road 8 East, Huntsville, ON POB 1MO

**Contact** Mimi Lawrenson

Tel: (705) 385-8000 | Fax: (705) 385-3260

info@ontariostonedepot.com

Website www.ontariostonedepot.com Quarries Franklin Township (near Huntsville)

#### **Block and Stone Resource Group Inc.**

370 2nd Avenue Southeast, Owen Sound, ON N4K 5T1

**Contact** Andrew Negus or Ben Snyder

> Tel: (519) 416-7625 | 1 (855) 416-7626 Fax: (519) 416-7626 | dsnyder@bsrg.ca

Website www.bsrg.ca

Quarries Amabel Township (near Wiarton)

Employees 18-48

#### **Bot Aggregates Ltd.**

**Address** 6791 Concession Road B-C, Ramara, ON LOK 1BO

Mailing address

1224 Speers Road, Oakville ON L6L 2X4

Contact Tel: 1 (877) 898-2688 | (905) 827-4167

Fax: 1 (866) 268-4177

generalinquiry@botconstruction.ca

Website www.botconstruction.ca Quarries Sebright (near Orillia)

#### **Brent Quarries**

**Address** 3841 Muskoka District Road 118 West

Port Carling, ON POB 1JO

**Contact** Ron Brent

Tel: (705) 765-6447 | inquiry@brentquarry.com

Website www.brentquarry.com

Quarries Medora, Humphrey and Watt townships

(near Parry Sound)

#### **Bruce Peninsula Stone Ltd.**

**Address** 451 Mar Sideroad

South Bruce Peninsula, ON NOH 2TO

Contact Eric Shouldice, Manager

Tel: (519) 534-3991, (519) 935-3333

Fax: (519) 534-4191

office@brucepeninsulastoneltd.com Website www.brucepeninsulastoneltd.com Quarries Amabel Township, Albemarle Township,

Lindsay Township (near Owen Sound)

#### **Callander Industries Ltd.**

**Address** P.O. Box 121, Callander, ON POH 1HO

Contact Gary M. Mote

Tel: (705) 752-2396 | Fax: (705) 752-5643

calind@sympatico.ca

Website www.callanderindustries.com Quarries McAuslan Township, Jocko Township,

Garrow Township (North Bay)

#### **Canadian Colour Rock Inc.**

**Address** 244 Copper Street, Suite 301, Sudbury, ON P3E 2C2

**Contact** H. Tsambis, Manager

Tel: (705) 690-0300 | jtskakoon@gmail.com

**Quarries** Gordon Township, Robinson Township

(Manitoulin Island), Aylmer Township (near Sudbury)

#### **Colonial Brick and Stone Inc.**

Address 5956 Perth Road 119, Brunner, ON NOK 1CO

**Contact** Elroy Wagler

Tel: (519) 595-4261 | Fax: (519) 595-2399

dwight@colonialbrickandstone.com

Website www.colonialbrickandstone.com
Quarries Robinson Township (Manitoulin Island)

#### **Coloured Aggregates Inc.**

Address Unit 12, 158 Don Hillock Drive, Aurora, ON L4G 0G9
Contact Jeff Oravecz | jeff\_oravecz@colouredaggregates.com

Jeff Oravecz | jeff\_oravecz@colouredaggregates.com Tel: (416) 491-0230 | 1 (800) 465-5066

Fax: (416) 494-1014

Website www.colouredaggregates.com

**Quarries** Canonto Township magnetite (near Kingston),

Ashby Township marble, Marmora mill

#### **Credit Valley Quarries Co. Ltd.**

**Address** 14550 Heritage Road, Caledon, ON L7C 1P5 **Contact** Tel: (905) 877-3686 | Fax: (905) 877-3686

stone@creditvalley quarries.com

Website www.creditvalleyquarries.com

**Quarries** Chingacousy Township (near Caledon)

#### **Cushman Stone and Gravel**

**Address** P.O. Box 161, 166 Savage Settlement Road

Novar, ON POA 1RO Jim Cushman, Owner

Tel: (705) 789-7830 | Fax: (705) 789-7830

**Quarries** Perry Township (near Huntsville)

#### **Cut Above Natural Stone**

**Contact** 

Contact

Address 7172 Concession B-C, Ramara, ON L3V 0K7

**Contact** Scott Gareau, Owner

Tel: (705) 327-1158, 1 (888) 557-7625

Fax: 1 (888) 349-7625

sales@cutabovenaturalstone.com

Website www.cutabovenaturalstone.com

Quarries Rama Township (near Orillia)

#### **Dufferin Aggregates**

Address 2300 Steeles Avenue West, 4th floor

Concord, ON L4K 5X6 Jeff Benedict, Sales

Tel: 1 (855) 225-5332 | Fax: (905) 761-5905

Website www.dufferinaggregates.com

**Quarries** Flamborough, Acton, Carden, Buckhorn, Milton

#### **Ebel Quarries Inc.**

Address 161 Old Oliphant Road, P.O. Box 69

Wiarton, ON NOH 2TO

**Contact** Mark Ebel, Vice-President

Tel: (519) 534-0380 | 1 (877) 614-4406 Fax: (519) 534-0077 | office@ebelquarries.com

Website www.ebelguarries.com

**Quarries** Amabel Township (near Owen Sound)

#### **Fowler Construction Company Limited**

Address 1206 Rosewarne Drive, PO Box 630

Bracebridge, ON P1L 1T9

**Contact** Tel: (705) 645-2214 | 1 (800) 268-7687

Fax: (705) 645-5025 | info@fowler.ca

mbalfe@fowler.ca

Website www.fowler.ca

**Quarries** McDougall Township (near Parry Sound),

Rama Township (near Orillia), MacAuley Township

(near Bracebridge)

#### **Georgian Bay Marble and Stone Inc.**

Address 3555 Bruce County Road 13, Wiarton, ON NOH 2TO

**Contact** Carl Anson Barfoot, Owner

Tel: (519) 534-3992 | Fax: (519) 534-3586

georgianbaymarble@bellnet.ca

**Website** www.gbmstone.com

**Quarries** Amabel Township (near Owen Sound)

#### **Harold Sutherland Construction**

Address 323545 East Linton Sideroad West, RR 2

Kemble, ON NOH 1SO

**Contact** Jennifer Sutherland

Tel: (519) 376-5698 | Fax: (519) 371-6121

amorrison@walkerind.com

Website www.hsc-ltd.com

**Quarries** Keppel Township, Lindsay Township, St. Vincent

Township (near Owen Sound)

#### Hilltop Stone and Supply Inc.

Address P.O. Box 241, Georgetown, ON L7G 4Y5

**Contact** J. Ferraro

Tel: (416) 571-8775, (905) 877-8587

Fax: (905) 877-0138 | info@hilltopstone.ca

**Website** www.hilltopstone.ca

**Quarries** 11679 17th Sideroad, Halton Hills, Equesing

Township (near Brampton)

Employees 10

#### **Hope Bay Quarry Inc.**

**Address** 1664 Bruce County Road 9, Wiarton, ON NOH 2TO

**Contact** Paul Bridge

Tel: (226) 668-8268 | Cell: (519) 378-8766

info@hopebayquarry.ca

Website www.hopebayquarry.ca

**Quarries** Albemarle Township (near Wiarton)

#### J.C.Rock Ltd.

Address 4337 Burnside Line, Unit 1, Orillia, ON L3V 6H4

**Contact** Cynthia Lis

Tel: 1 (877) 326-4006, (705) 326-4000 Fax: (705) 329-2473 | sales@jcrock.ca

Website www.jcrock.ca

**Quarries** Norland (north of Lindsay), Crookston

(north of Belleville)

#### **Jeff Parnell Contracting Ltd.**

1199 Connaught Drive, Ennismore, ON KOL 1TO

**Contact** Brian Aziz

Tel: (705) 292-6587 | Fax: (705) 292-6587

sales@jeffparnellcontracting.com www.jeffparnellcontracting.com

Website Quarries Galway Township (near Peterborough)

#### **John Bacher Construction Limited**

5054 Muskoka Road 117, P.O. Box 190 **Address** 

Dorset, ON POA 1E0

**Contact** Eric Doig

> Tel: (705) 787-5038 (General Manager) (705) 766-0204 | Fax: (705) 766-1264 kathleen@johnbacherconstruction.com

Website www.johnbacherconstruction.com **Quarries** McClintock Township (near Huntsville)

#### **Johnston Quarry**

**Address** 1148 Blare Hampton Road, Minden, ON KOM 2KO

Contact Mervin Johnston

Tel: (705) 489-2829 | Fax: (705) 489-2829

**Quarries** Galway Township (near Peterborough)

#### **Keystone Granite**

**Address** 2451 Highway 60, P.O. Box 5287

Huntsville, ON P1H 2K6

**Contact** Joelayne Hutchins | joelayne@keystonegranite.ca

Tel: (705) 783-6370 | Fax: (705) 788-2655

Website www.keystonegranite.ca

**Quarries** Lake of Bays Township (near Huntsville)

#### **Limberlost Stone Inc.**

**Address** 1692 Highway 6, Town of South, ON NOH 2TO

**Contact** 

Website

Tel: (519) 793-3830 | Fax: (519) 793-3994

info@limberloststone.com www.limberloststone.com

Quarries Albemarle Township (near Owen Sound)

#### **McFadyen's Stone Quarry**

**Address** 1020 Old Highway, RR 4, Huntsville, ON P1H 2J6

**Contact** Cindy McFadyen, Administrator

Tel: (705) 635-2983 | Fax: (705) 635-9706

mcfadyenstone@hotmail.com

Franklin Township (near Huntsville) Quarries

(seasonal operations)

#### **Mill Lake Stone Quarry Limited**

**Address** RR 3, Compartment 4, Parton Road

Parry Sound, ON P2A 2W9

**Contact** Ted Hall, General Manager

Tel: (705) 746-9882 | ted@milllakestonequarry.com

Website milllakestonequarry.com

Quarries McDougall Township (near Parry Sound)

#### Miller Paving Ltd.

**Address** 356 Miller Road, P.O. Box 270, Brechin, ON LOK 1BO

**Contact** Rob Lindsav

Tel: (705) 484-1101 ext. 31 | rlindsay@millergroup.ca

Website www.millergroup.ca

Quarries Carden Township (Brechin Quarry)

#### Miron Topsoil Ltd.

**Address** P.O. Box 1377 (Quarry: 999932 Highway 11)

New Liskeard, ON POJ 1PO

Contact **Edmond Miron** 

Website

Tel: (705) 647-5823 | (705) 563-2430 (quarry)

Fax: (705) 647-9322 www.mirontopsoil.com

Quarries Harley Township (Thornloe, ON)

#### **Nelson Granite Limited**

**Address** P.O. Box 178, Vermilion Bay, ON POV 2VO

Contact Craig Spence | craig.spence@nelsongranite.com

Tel: (807) 227-2650 | Fax: (807) 227-2722

www.nelsongranite.com Website

Quarries Docker Township, Forgotten Lake Area, Wonderland

Lake Area, Red Deer Lake Area (near Kenora)

#### **Odawa Stone Ltd.**

**Address** 1079-A Sheshegwaning Road

Sheshegwaning, ON POP 1X0

Contact Dennis Blackburn

Tel: (705) 283-3292 | Fax:(705) 283-3481

sales@odawastone.com

Website www.odawastone.com

**Quarries** Robinson Township, Silver Water, Manitoulin Island

(near Sheshegwaning)

#### **OMYA (Canada) Inc.**

18595 Highway 7 West, P.O. Box 245 **Address** 

Perth, ON K7H 3E4

**Contact** Larry Sparks

Tel: (613) 267-5367 | 1 (800) 267-8920

Fax: (613) 267-5408 | larry.sparks@omya.com

Website www.omya.com

**Quarries** Darling Township (near Perth)

#### **Owen Sound Ledgerock Limited**

138436 Ledgerock Road, RR 5, P.O. Box 445 **Address** 

Owen Sound, ON N4K 5P7

Contact Tom Stobbe

Tel: (519) 376-0366 | Fax: (519) 376-7078

info@ledgerock.com

Website www.ledgerock.com

Quarries Amabel, Keppel, Albemarle Townships

(near Owen Sound)

#### **Redstone Quarries**

**Address** 1128 County Road 49, P.O. Box 424

Bobcaygeon, ON KOM 1A0

Ted Sturman | tsturman@trytel.net **Contact** 

Tel: (705) 738-4100 | Fax: (705) 738-4100

Website www.redstonequarries.com

Quarries Harvey, Galway, Cavendish Townships

(near Peterborough)

#### Rice and McHarg Ltd.

**Address** 40 Cleaveholm Drive, Georgetown, ON L7G 3E1

**Contact** Joe Rice or Ivan Rice, Owners

(905) 877-2129 | jrice15@cogeco.ca

**Ouarries** 12224 5th Line, Limehouse, ON LOP 1HO

(Esquesing Township)

#### **Rideauview Contracts Ltd.**

2081 Washburn Road, RR 2, Inverary, ON KOH 1XO **Address** 

Contact Jim Jackson, President

> Tel: (613) 546-7779 | Saw Shop: (613) 387-3851 Fax: (613) 546-2433 | info@rideauviewcontracts.com

Website www.rideauviewcontracts.com

Quarries Camden, Portland, Pittsburgh, Rear of Leeds and

Lansdowne Townships (near Kingston)

#### **Rigbe Quarry**

**Address** Head Office: 443 Railside Drive

Brampton, ON L7A 1E1

**Phone** (705) 333-3523 **Email** info@rigberock.com

#### **Rockleith Quarry Ltd.**

Address 2181 Brennan Line, Orillia, ON L3V 6H3

**Contact** Graham Harper

Tel: (705) 326-1407 | 1 (866) 288-2516

Fax: (705) 326-4634 | grh1@live.ca

Website www.rockleith.com

Quarries Severn Township (near Orillia)

#### **Silicorp Developments Inc.**

**Address** 144 Stephenson Road 8 East

Huntsville, ON POB 1MO

**Contact** Greg Marsh

Tel: (647) 220-6852 | gregmarsh@rogers.com

Quarry Wyse Township (North Bay area)

#### **Speiran Quarries**

**Address** 376 Millard Street, Orillia, ON L3V 4H4

Contact Diane Speiran, Owner and Manager

Tel: (705) 329-4899

diane.speiran@sympatico.ca

Quarries Rama Township (near Orillia)

#### **Stonescape Quarry**

**Address** 2189 County Road 36, P.O. Box 72

Buckhorn, ON KOL 1JO

Contact Rob Darling | rob@stonescapeinc.com

Tel: (705) 657-7111 | 1 (877) 657-7111

Fax: (866) 666-7325

Website www.stonescapeinc.com

Quarries Harvey Township (near Peterborough)

#### **Taillefer Quarry**

**Address** Sturgeon Falls, ON P2B 3K8

Contact Edgar Taillefer, Owner

Tel: (705) 753-9077

Website www.tailleferguarries.com/home.html **Quarries** Aylmer Township (near Capreol)

#### **Ted Boyes and Sons Construction Limited**

**Address** P.O. Box 75, Burk's Falls, ON POA 1CO

Contact Tom Boyes, Manager | tomboyes10@gmail.com

Tel: (705) 382-3626 | (705) 382-2920

Fax: (705) 382-2199

**Quarries** Ryerson Township (near Parry Sound)

#### The Rock Centre

140 Pinewood Park Drive, North Bay, ON P1B 8Z4 **Address** 

Contact Jamie Fuller | jamie@therockcentre.ca

Tel: (705) 495-1744 | (705) 358-3060 Cell: (705) 358-1100 | Fax: (705) 495-1745

Website www.therockcentre.ca

**Quarries** Five quarries, North Bay Area

#### **Upper Canada Stone Company Ltd.**

Address 3094 Line 4 North, RR 1, Oro Medonte, ON LOL 2LO

**Contact** Richard Scratch, Vice-President

Tel: (705) 835-7530 | 1 (800) 806-0000

Fax: (705) 835-7535

Charlie Giffin | charlie@uppercanadastone.com

sales@uppercanadastone.com

Website www.uppercanadastone.com

**Quarries** Gibbons Township (near Sudbury), Mayo, Cashel,

Madoc, Rear of Leeds and Lansdowne Townships

(near Kingston)

#### **Muskoka Rock Company**

1165 Bethune Drive North, Gravenhurst, ON P1P 1R1 **Address** Tel: (705)-788-7666 | (705) 787-6241 (quarry) **Contact** 

(705) 687-8700 (sales) | Fax: (705) 788-5121

sales@muskokarockcompany.com

Website muskokarockcompany.com

Quarries Franklin Township (near Huntsville)

#### **Wiarton Stone Quarry Inc.**

**Address** 3577 Bruce Road 13, RR 3, Wiarton, ON NOH 2TO

Contact Mike Ebel | mike@wiartonstonequarry.com

Tel: (519) 534-2226 | Fax: (519) 534-5120

Website www.wiartonstonequarry.com

Quarries Amabel Township (near Owen Sound)

# Corporate Offices of Companies with Metal Mines in Ontario

#### **Alamos Gold Inc.**

181 Bay Street, Suite 3910, Toronto, ON M5J 2T3 Toll-Free: 1 (866) 788-8801 | Tel: (416) 368-9932 Fax: (416) 368-2934 | www.alamosgold.com • Island Gold Mine • Young-Davidson Mine

#### **Barrick Gold Corp.**

Brookfield Place, TD Canada Trust Tower 161 Bay Street, Suite 3700, P.O. Box 212, Toronto, ON M5J 2S1 Toll-Free: 1 (800) 720-7415 | Tel: (416) 861-9911 Fax: (416) 861-2492 | www.barrick.com

Williams Mine

#### **Detour Gold Corp.**

Commerce Court West 199 Bay Street, Suite 4100, P.O. Box 121, Toronto, ON M5L 1E2 Tel: (416) 304-0800 | Fax: (416) 304-0184 www.detourgold.com

Detour Lake Gold Mine

#### Ferromin Inc.

158 Don Hillock Drive, Unit 13, Aurora, ON L4G 0H6 Toll-Free: 1 (800) 465-5066 | Tel: (416) 491-0230 Fax: (416) 494-1014 | www.ferromininc.com

• Tomclid Iron Mine

#### **Glencore PLC**

#### Glencore Canada Corp.

100 King Street West, Suite 6900, Toronto, ON M5X 1E3 Tel: (416) 775-1500 | Fax: (416) 775-1744 | www.glencore.ca Kidd Creek Mine

#### **Glencore PLC**

#### **Sudbury Integrated Nickel Operations**

6 Edison Road, Falconbridge, ON POM 1SO Tel: (705) 693-2761 ext. 3120 | www.sudburyino.ca

• Fraser Mine • Nickel Rim South Mine

#### Harte Gold Corp.

161 Bay Street, Suite 2400, Toronto, ON M5J 2S1 Tel: (416) 368-0999 | www.hartegold.com

• Sugar Zone Gold Mine

#### **Impala Platinum Holdings Ltd.**

#### Impala Canada Ltd.

One University Avenue, Suite 1601, Toronto, ON M5J 2P1 Tel: (416) 360-7590 | Fax: (416) 360-7709 | www.nap.com • Lac des Iles Mine

#### KGHM Polska Miedz S.A.

#### KGHM International Ltd.

191 Creditview Road, Vaughan, ON L4L 9T1 Tel: (647) 265-9191 | Fax: (604) 689-8556 | www.kghm.com McCreedy West Mine

#### Kirkland Lake Gold Ltd.

Royal Bank Plaza, South Tower 200 Bay Street, Suite 3120, Toronto, ON M5J 2J1 Tel: (416) 840-7884 | www.klgold.com • Holloway-Holt Mine • Macassa Mine • Taylor Mine

#### McEwen Mining Inc.

150 King Street West, Suite 2800, Toronto, ON M5H 1J9 Toll-Free: 1 (866) 441-0690 | Tel: (647) 258-0395 Fax: (647) 258-0408 | www.mcewenmining.com Black Fox Mine

#### New Gold Inc.

**Brookfield Place** 181 Bay Street, Suite 3320, Toronto, ON M5J 2T3 Tel: (416) 324-6000 | Fax: (416) 324-9494 www.newgold.com

#### **Newmont Corp.**

Rainy River Mine

666 Burrard Street, Suite 3400, Vancouver, BC V6C 2X8 Tel: (604) 696-3000 | www.newmont.com • Cochenour Mine • Musselwhite Mine • Porcupine Gold Mines (Borden Mine, Hollinger Mine, and Hoyle Pond Mine) • Red Lake

#### Pan American Silver Corp.

Tahoe Canada 625 Howe Street, Suite 1440, Vancouver, BC V6C 2T6 Tel: (604) 684-1175 | Fax: (604) 684-0147 www.panamericansilver.com • Bell Creek Mine • Timmins West Mine

#### Vale S.A.

#### Vale Canada Limited

Royal Bank Plaza, South Tower 200 Bay Street, Suite 1500, Toronto, ON M5J 2K2 Tel: (416) 361-7511 | www.vale.com/canada • Coleman Mine • Copper Cliff North Mine • Creighton Mine • Garson Mine • Totten Mine

#### **Wesdome Gold Mines Ltd.**

220 Bay Street, Suite 1200, Toronto, ON M5J 2W4 Tel: (416) 360-3743 | www.wesdome.com • Eagle River Mine • Mishi Mine

#

# 21C Metals Inc. (formerly Declan Cobalt Inc)

1620 West 8th Avenue, Suite 302 Vancouver, BC V6J 1V4 (604) 639-4472 | www.21cmetals.com

# 55 North Mining Inc. (formerly SGX Resources Inc.)

401 Bay Street, Suite 2702 Toronto, ON M5H 2Y4 (416) 567-9087 www.55northmining.com

#### Δ

#### Agnico Eagle Mines Ltd.

145 King Street East, Suite 400 Toronto, ON M5C 2Y7 (416) 947-1212 | www.agnicoeagle.com

#### Alamos Gold Inc.

181 Bay Street, Suite 3910 Toronto, ON M5J 2T3 (416) 368-9932 | www.alamosgold.com

#### Alto Ventures Ltd.

800 West Pender Street, Suite 615 Vancouver, BC V6C 2V6 (604) 689-2599 www.altoventures.com

#### **Ambershaw Metallics Inc.**

First Canadian Place, 100 King Street West, Suite 5600 Toronto, ON M5X 1C9 (647) 846-0230 | ambershaw.ca

#### Ardiden Ltd.

34 Colin Street, Level 1 West Perth, WA 6005 Australia 61-8-9322-7600 | www.ardiden.com.au

#### Argo Gold Inc.

350 Bay Street, Suite 700 Toronto, ON M5H 2S6 (416) 786-7860 | www.argogold.ca

#### **Argonaut Gold Inc.**

9600 Prototype Court Reno, NV 89521 USA (775) 284-4422 www.argonautgold.com

#### Atacama Resources International Inc.

P.O. Box 811, 33 Father Costello Drive Schumacher, ON PON 1GO (519) 222-3890 | www.acrlintl.com

#### **AurCrest Gold Inc.**

22 Adelaide Street West, Suite 3600 Toronto, ON M5H 4E3 (807) 737-5353 | aurcrest.ca

#### **Aurelius Minerals Inc.**

110 Yonge Street Toronto, ON M5C 1T4 (416) 304-9095 | aureliusminerals.com

#### **Avalon Advanced Materials Inc.**

130 Adelaide Street West, Suite 1901 Toronto, ON M5H 3P5 (416) 364-4938 avalonadvancedmaterials.com

#### В

#### **Balmoral Resources Ltd.**

700 West Pender Street, Suite 1750 Vancouver, BC V6C 1G8 (604) 638-3664 www.balmoralresources.com

#### **Barrick Gold Corp.**

161 Bay Street, Suite 3700 Toronto, ON M5J 2S1 (416) 861-9911 | www.barrick.com

#### **Battery Mineral Resources Ltd.**

100 King Street West, Suite 5600 Toronto, ON M5X 1C9 (416) 306-5790 batterymineralresources.com

#### **Benton Resources Inc.**

684 Squier Street Thunder Bay, ON P7B 4A8 (807) 475-7474 www.bentonresources.ca

#### **Bold Ventures Inc.**

22 Adelaide Street West, Suite 3600 Toronto, ON M5H 4E3 (416) 864-1456 www.boldventuresinc.com

#### **Brixton Metals Corp.**

409 Granville Street, Suite 551 Vancouver, BC V6C 1T2 (604) 630-9707 | brixtonmetals.com

#### BTU Metals Corp.

789 West Pender Street, Suite 1240 Vancouver, BC V6C 1H2 (604) 683-3995 | www.btumetals.com C

#### Cadillac Ventures Inc.

1099 Kingston Road, Suite 269 Pickering, ON L1V 1B5 (416) 203-7722 www.cadillacventures.com

#### **Canada Cobalt Works Inc.**

3028 Quadra Court Coquitlam, BC V3B 5X6 (604) 828-1475 www.canadacobaltworks.com

#### Canadian Gold Miner Corp.

410 Falconbridge Road, Unit 5 Sudbury, ON P3A 4S4 (705) 669-1777 www.canadiangoldminer.com

#### Canadian Orebodies Inc.

141 Adelaide Street West, Suite 301 Toronto, ON M5H 3L5 (416) 644-1747 www.canadianorebodies.com

#### Centerra Gold Inc.

1 University Avenue, Suite 1500 Toronto, ON M5J 2P1 (416) 204-1953 | centerragold.com

#### **Central Timmins Exploration Corp.**

4950 Yonge Street, Suite 1008 North York, ON M2N 6K1 (416) 203-3776 www.centraltimmins.com

#### **Champion Bear Resources Ltd.**

2005-9th Street Southwest Calgary, AB T2T 3C4 (403) 229-9522 www.championbear.com

#### **Commander Resources Ltd.**

1111 Melville Street, 11th Floor Vancouver, BC V6E 3V6 (604) 685-5254 www.commanderresources.com

#### **Comstock Metals Ltd.**

850 West Hastings Street, Suite 310 Vancouver, BC V5K 0A1 (604) 639-4533 www.comstock-metals.com

#### **Conquest Resources Ltd.**

55 University Avenue, Suite 1805 Toronto, ON M5J 2H7 (647) 728 4126 www.conquestresources.com

#### Copper Lake Resources Ltd.

501 Alliance Avenue, Suite 401 Toronto, ON M6N 2J1 (416) 561-3626 copperlakeresources.com

#### Cruz Cobalt Corp.

701 West Georgia Street, Suite 1470 Vancouver, BC V7Y 1C6 (604) 899-9150 www.cruzcobaltcorp.com

#### **Crystal Lake Mining Corp.**

13236 Cliffstone Court Lake Country, BC V4V 2R1 (604) 261-4466 crystallakeminingcorp.com

#### De Beers Canada Inc.

1601 Airport Road Northeast, Suite 300 Calgary, AB T2E 6Z8 (403) 930-0991 www.canada.debeersgroup.com

#### **Delta Resources Ltd.**

1718 Christine Crescent Kingston, ON K7L 4V4 (613) 328-1581 | www.deltaresources.ca

#### **Detour Gold Corp.**

199 Bay Street, Suite 4100, P.O. Box 121 Toronto, ON M5L 1E2 (416) 304-0800 | www.detourgold.com

#### **Dynasty Gold Corp.**

610 Granville Street, Unit 1613 Vancouver, BC V6C 3T3 (604) 633-2100 www.dynastygoldcorp.com

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#### Edison Cobalt Corp.

789 West Pender Street, Suite 1080 Vancouver, BC V6C 1H2 (416) 276-6689 | edisoncobalt.com

#### **Empire Metals Corp.**

889 West Pender Street, Suite 702 Vancouver, BC V6C 3B2 (604) 683-3288 www.empiremetalscorp.com

#### Falcon Gold Corp.

470 Granville Street, Suite 520 Vancouver, BC V6C 1V5 (604) 683-1991 | www.falcongold.ca

#### Fancamp Exploration Ltd.

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# **Exploring under conductive clay cover:**

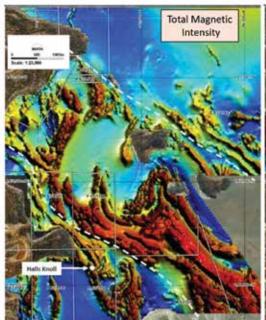
# Galvanic HeliSAM case studies from Australia and Canada using the magnetometric conductivity technique

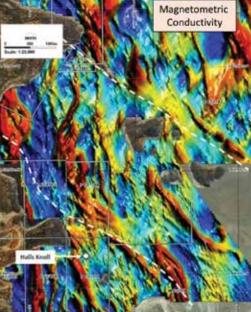
By Ryan Olson<sup>1</sup>, Brent Robertson<sup>2</sup>, derived from works by Malcolm Cattach<sup>3</sup> <sup>1</sup> Gap-Discovery HeliSAM, <sup>2</sup> Discovery Int'l Geophysics, <sup>3</sup> Gap Geophysics Australia

xploration in the Abitibi clay belt, or other regions where conductive regolith is dominant (e.g. saline alluvial cover, sediment cover in desert valleys under range front pediments, etc.) can greatly limit the effectiveness of traditional electromagnetic (EM) or electrical (IP/Res) geophysical exploration. It is essential when planning an explorative geophysical survey to take into account the potential masking effects that conductive cover can create. Galvanic SAM minimizes inductive response from conductive cover by utilizing long galvanic dipoles to drive current deep into the underlying bedrock geology, thereby creating linear electrical current flow along structures below the conductive cover.

The Galvanic SAM method measures the magnetic field induced by a time-varying electrical current applied to the Earth. The applied current is created with a high-power transmitter system producing a low-frequency square-wave signal that is introduced into the ground through distant electrodes placed along strike of the structure or lithology under investigation. The transmitter current is preferentially channelled along geological features that are relatively less resistive than their surroundings. The electromagnetic signal from current distribution within the ground is measured simultaneously with the Earth's spatially varying magnetic field using a Cs Vapour total-field magnetometer that samples at a very high sample rate

# SAM MMC Case Study - Polar Bear, WA



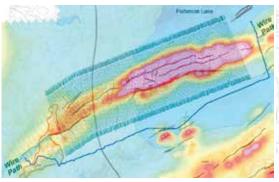


SAM from Polar Bear Prospect, WA (Sirius)

- Towed sled on salt lake
   Extremely conductive
- Smaller survey grids
- Approx 20 grids
- Approx 30 sq km
- Approx 600 line km
- 20 days to survey
- Tx freq 1Hz
- Current ~15A
- Sees fine detail of stratigraphy and structure to allow definition of new gold and nickel targets

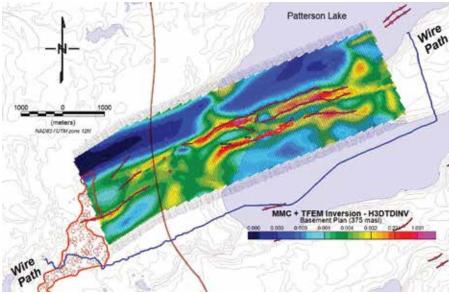
 From a Presentation by Mark Bennett (Sirius Resources) at the Sydney Resources Roundup, 12th May 2010

Case study from Western Australia. Magnetometric conductivity over salt lake. Showing conductors masked from traditional inductive EM. COURTESY OF GAP GEOPHYSICS.



Case study from Northern Saskatchewan. Left: Channel 36 dB/dt VTEM response. Right: Magnetometric conductivity and total field electromagnetics from a Galvanic HeliSAM survey were jointly inverted to provide a high-resolution conductivity model at the basement contact. Overlain with interpreted conductors from airborne and ground EM surveys.

COURTESY OF BINGHAM GEOPHYSICS.



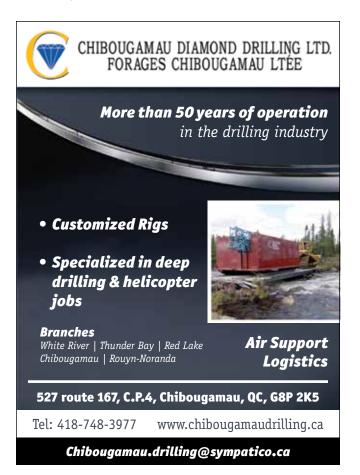
to effectively measure the full spectrum of the artificial waveform. The signals from Earth's static magnetic field, combined with the electromagnetic field due to the applied current (including that from the transmitting wire) are spectrally distinct. They may be separated with the aid of digital signal processing techniques and processed to remove these effects and to sample parts of the waveform to produce total-field magnetometric conductivity (TFMMC), total-field electromagnetics (TFEM) and total magnetic intensity (TMI).

Galvanic SAM can be employed in either airborne mode, which is suited to rugged or heavily forested terrain, or ground walking mode, which is suited to open, easily traversed terrain. Either mode can rapidly map electrical current flow in the range of 20 to 200 line/kilometres per day acquiring high-resolution data to a depth of 200 to 300 meters below conductive regolith. Measured conductivity contrast can be associated with conductive minerals. differential weathering within shear zones, different lithologies, lithological contacts, alteration zones, and related structures. In general, TFMMC highs can be interpreted as sites of increased current flow in zones of higher conductivity, whereas TFMMC lows highlight more resistive areas. Offsets observed in TFMMC trends can be interpreted to result from cross-cutting faults and structures. Swelling along linear features can be interpreted to be areas of alteration (possible sweet spots) along strike. High-resolution total magnetic intensity (TMI) is also a standard deliverable product.

Frequently structures controlling mineralization require close-spaced drilling along and across strike to properly evaluate for potential economic mineralization. The SAM technique can be used to more accurately define narrow zones of conductivity contrast and areas more likely to control mineralization and identify the extent of known mineralization.

Key advantages:

Rapid acquisition 100 to 200 line/kilometres per day airborne, 10 to 30 line/kilometres per day walking mode:



# HELISAM CAN SIGNIFICANTLY ADVANCE A PROJECTS POTENTIAL BY PRECISELY REFINING PROSPECTIVE CONDUCTIVITY TARGETS TO A DEPTH OF 200 TO 300 METERS IN A MATTER OF DAYS.

- Very high-resolution, identification of subtle anomalous features;
- Multi-parameter data sets, TFM-MC/TFEM/TMI offers multiple complementary views of the geology below conductive cover;
- Relatively inexpensive high value for money spent.

A case study (see figure 1) compiled by Gap Geophysics from the Yilgarn Craton in Western Australia highlights an exploration program over a salt lake. Due to the uniformity of the terrain, the SAM sensor was mounted to a sled and towed by ATV for a total of approximately 600 line-kilometers, across approximately 20 dipoles. The magnetometric conductivity was able to highlight structures below the salt flat to help define potential gold and nickel targets.

A Galvanic HeliSAM test survey was flown over the Patterson Lake Corridor in Northern Saskatchewan through a joint venture between Discovery International Geophysics and Gap Geophysics in an effort to open up accessibility to the HeliSAM system for the Canadian industry. Although not explicitly plagued by conductive cover other than the typical conductive lake bottom, the survey serves as a proof of concept of the galvanic HeliSAM method, and the improvement in resolution compared to a standard helicopter TEM survey because of the EM smearing effects of the conductive lake-bottom sediments. The magnetometric conductivity and total field EM data sets were jointly inverted to create a high-resolution conductivity model of the basement unconformity as illustrated in Figure 2.

For projects in the Abitibi clay belt, or other regions where geophysical exploration is hindered by conductive cover, a Galvanic HeliSAM survey should be considered to provide low-cost, high-resolution, multi-parameter data sets. HeliSAM can significantly advance a projects potential by precisely refining prospective conductivity targets to a depth of 200 to 300 meters in a matter of days, as opposed to weeks or months common to ground electrical/electromagnetic surveys.





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# INDEX TO ADVERTISERS

Activation Laboratories	35
ALS Global	5
Association for Mineral Exploration	11
Canadian Exploration Services Limited	10
Chibougamau Diamond Drilling Ltd	51
Corriveau J.L. & Ass. Inc	18
Custom Helicopters	35
Discovery International Geophysics	IFC
dp Diamond Blades	2
Elemental Controls	8
Expert Geophysics	7
Forest Helicopters	3
G4 Drilling	19
GDD	18
GEM Systems Inc	55
Geosig Inc.	35
Greg Macdonald Equipment	2C
IBK Capital Corp	27

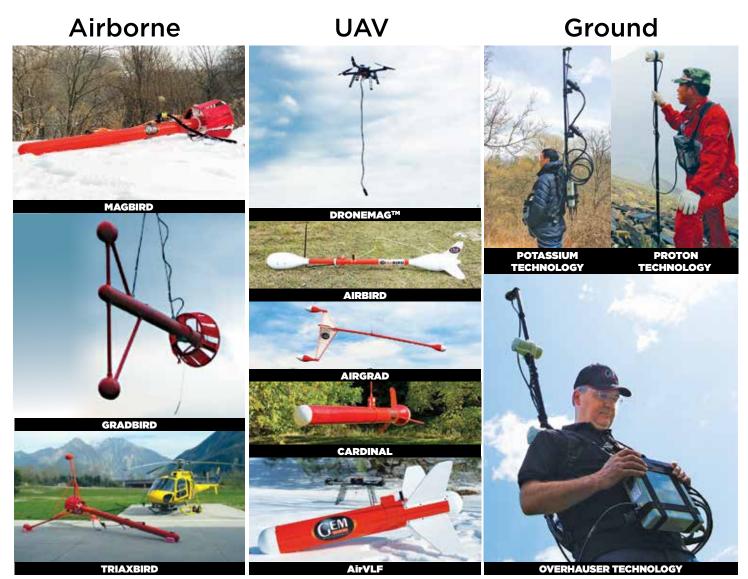
Korex	1C
Lamontagne Geophysics Ltd	29
Major Drilling	2
Montoro Resources	7
Morgan Fuels	52
Mud Bay Drilling / ConeTec	3
Norseman Structures	9
Odyssey Fluid Power	8
PDAC	17
Signal Weather Services	20
Sling Choker	20
Superior Exploration	1C
Tashota Resources	15
Tech Directional Services	5
The Gear Centre	16
TPS Group	7
TSL Laboratories	52





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# Tuesday, April 7 9 a.m to 6 p.m.

Northwestern Ontario
Prospectors Association (NWOPA)
Awards Dinner (ticketed event)
will be held Tuesday,
April 7 at 6 p.m. Be sure to get
your ticket – this event sells out!

# Wednesday, April 8 9 a.m. to 4 p.m.

The exhibit floor will be open to public review from 1 p.m. to closing.

# The Explorers Cup Charity Hockey Game Thursday, April 9 Fort William Gardens

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For more information, visit our website at the link below and/or contact Garry Clark at (807) 622-3284 or (807) 472-9989.

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