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# THE SUPER GIANTS

## THEY'RE OUT THERE, AND THEY'RE COMING

By Loren McGinnis

**O**n the horizon sit a group of mineral deposits that could, someday, provide hundreds of millions of tonnes of ore over decades and, in so doing, smooth out mining's boom and bust cycles in the North. The very nomenclature associated with them – the super giants – makes them sound mythical. In some cases, they almost are. In all cases, this group of up-and-coming monsters has years before any one of them might be put into production.

A super giant is defined by the size of the mineral deposit. The North boasts a handful of these huge, world-class deposits, but poor infrastructure makes the prospect of getting the minerals out of the ground and to market a costly proposition. How to power the mine? And how to transport workers and materials in and out and get the goods to market? In the case of the North's super giants, who pays for that infrastructure is an unanswered question. Until it is answered, the potential of these super giants will remain out there, on the horizon. And smaller mining operations nearby, which could open with new power and transportation infrastructure, will remain untenable, too. But that doesn't dampen the enthusiasm of the people driving these

projects. For them, the question is always when, not if.

The NWT & Nunavut Chamber of Mines has set the development of infrastructure as a top priority. No doubt, mining companies with operations that sit a few years out on the horizon are heartened to see it. However, Lou Covello, a long-time director of the chamber, makes no bones about his frustration with what he sees as the federal government's reluctance to invest in the North. "If the same deposits were in the south, the infrastructure would be developed tomorrow," says Covello, "but because we don't have the people – or the votes – it's not happening here."

Covello is confident that once this group of super giants has the infrastructure to move into production, it will create the possibility for new, yet undiscovered and even unimagined projects to take hold. Like the people driving the next group of super giants, Covello walks the line between frustration and enthusiasm. While disappointed with the atmosphere in which mining companies are trying to operate in the North, we have one thing going for us. "World wide, with respect to mineral endowment," he says, "we're second to none." CONTINUED...



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**THE SUPER GIANTS** CONTINUED

**The big heavy**

Project name: Mary River  
Location: Baffin Island, near Pond Inlet  
Minerals: Iron ore  
Owner: Baffinland Iron Mines  
Earliest possible production date: 2015

When asked what the mine-life of the Baffinland iron ore project could be, company chairman Richard McCloskey chuckles and wonders, "Forever?" Only after a good laugh does he settle into a consideration of just how big and promising this super giant deposit on North Baffin Island is, and of how long it could be mined at projected production rates. "We've reported 350 million tons of reserve. That's 20 years at 18 million tons a year. We have an additional 550 tons of resource and that's the beginning of it." The resource is not infinite, but it's truly huge and could take multiple generations to mine. McCloskey is quick to focus on the impact three generations of employment opportunities would have on the people of Nunavut.

The plan is to operate and ship out iron ore year-round. The plan to do that involves a rail line which would move the volume of ore to the coast where it would then be shipped, primarily to Europe. McCloskey says the transportation plan does not involve inventing anything new, but it is expensive. Some of the rail route will run over permafrost. That means soil in those places will have to be in-

sulated so that it doesn't melt and destabilize the rail tracks. Once the ore is at the coast it will be loaded onto ships with ice breaking capability that are designed though not yet built. "Do these ships exist: no they don't," says McCloskey, "but we have guarantees these ships will work, 100 per cent."

Between the over-land rail and the ice breaking ships, McCloskey says the transportation infrastructure will make up around three-quarters of the over \$4-billion expected cost of start-up. No surprise, finding that kind of money is the main thing slowing the project down. "If we had \$4-billion, it would take two years to permit and four years to build," says McCloskey. "We're permitting now, but the financing isn't there yet." So where does McCloskey get his enthusiasm? From the size and quality of the resource. Drilling into the Baffinland super giant, says McCloskey, "is like drilling into an engine block. It's pure iron."

At the time of publication, Baffinland was considering a hostile takeover bid made by an Australian company, Iron Ore Holdings LP, valued at \$274-million.

**■ Baffinland would have to build a 143-kilometre rail line from the mine to Steensby Inlet (on the south shore of Baffin Island) and a port to transport the iron ore to market.**



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**The trans-boundary super giant**

Project name: Howard's Pass  
Location: Yukon-NWT border  
Minerals: Lead and zinc  
Owner: Selwyn Chihong Mining  
Earliest possible production date: 2014

The Selwyn Chihong project in Howard's Pass straddles the Yukon-NWT border. Covello says it is an undisputed super giant: "It could have 100 years of production," he says.

Harlan Meade, president and CEO of joint-venture partner Selwyn Resources, calls it, "Canada's national treasure in zinc and lead. I mean, it's big." The project got a big shot in the arm this summer with the closure of a \$100-million deal with China's Chihong Zinc and Germanium Company. For the Howard's Pass project, it means stable financing and access to Chinese bank loans.

Most of the deposit is on the Yukon side of the border and permitting for the project has been focussed in that territory, but Meade says he hopes that does not mean people in the NWT won't benefit. He expects that the mine, once it is in production, will employ between 350 and 400 full-time employees. Those jobs would be up for grabs across borders, and Meade also sees the potential for economic spinoffs across the territorial border. Primarily, says Meade, those opportunities rest in the mines infrastructure needs.

By Meade's assessment, those infrastructure needs are very simple: "roads and power." He says the company has initiated talks with First Nations in the Sahtu region about whether they could supply power to the mine. He also notes that First Nations have not observed territorial divisions in the past, and says, "We've suggested that they might find other ways to collaborate across boundaries on opportunities."

Meade is not comfortable speculating on 100 year timelines, but he does say a 40 to 50 year mine-life is entirely feasible. He also compares Selwyn Chihong's deposit in the Howard's Pass to a past lead, zinc and silver super giant: British Columbia's Sullivan deposit. It was mined for over 90 years, going out of production in 2001. Finally, Meade trumpets the wide-spread impact of strategic investments in roads and power generation: "This will open up the eastern Yukon, an area that has always been held back by infrastructure." CONTINUED...

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**The rarest of super giants**

Project name: Nechalacho  
 Location: 100 km southeast of Yellowknife  
 Minerals: Rare earth metals  
 Owner: Avalon Rare Metals  
 Earliest possible production date: 2015

This fall the Japanese felt the wrath of the world's dominant producer of rare earth metals: China. The Chinese control some 95 per cent of the global supply of the metals which are used, among other things, in electronics production. Tangled up in a land dispute over some small islands, the Chinese cut off Japan's supply. Avalon presi-

dent and CEO Don Bubar says security of supply will be a huge demand driver when Nechalacho goes into production. He says his business is as much like a manufacturing business as it is a conventional mine: "You can have the biggest deposit in the world," he says, "but if you don't have customers, you don't have a business."

Bubar says that means the size of the mine and the rate of production is not determined by the size of the deposit, but rather by demand. That said, Bubar is optimistic about where demand for rare earth metals, such as cerium and terbium, is going. Covello shares that optimism. "We're predicting that demand will go from 80 thousand tonnes per year, world wide, to 1.5 million tonnes per year in 10 years," he says. If that demand continues to grow, Nechalacho could be producing for "a couple of hundred years."

Bubar's analogy to manufacturing is partly due to the intensive refining process that takes place once the minerals are out of the ground. For that, he says, Avalon needs power and re-agents to run a processing plant. The re-agents, used to separate the metals from the earth and from each other, will have to be sourced from the south. Avalon is considering barging the raw materials from the mine on the north shore of Great Slave Lake to Hay River on the south shore, and building a hydrometallurgical plant there. But this is dependent on the costs of power and of shipping the re-agents. Bubar is cautious about discussing the likelihood of harnessing power in the NWT. "Power is a very political issue in the North," he says.

**The aspirational giant**

Project name: Hackett River  
 Location: 75 km from Bathurst Inlet, NU  
 Minerals: Silver, zinc, copper, lead, gold  
 Owner: Sabina Gold & Silver  
 Earliest possible production date: 2016

Sabina Gold & Silver modestly counts its Hackett River project as a giant, rather than a super giant. But Covello says it may go the way of the super. The reserve at Hackett River, says Covello, "is very conservatively estimated at 60 million tonnes. Geologically, there would be very little difficulty in doubling that."

That doubling moves Hackett River towards the category of super giant. Sabina vice president Peter Manojlovic makes sure to point out that the company is still small, but he says he has seen huge Canadian mining companies that were built on the backs of similar and even lesser deposits.

The company spent \$25-million this past summer to complete 46,000 metres of drilling and had some excellent results.

"The one thing holding it back is its location," says Manojlovic. "We need infrastructure." Namely a road to connect the operation to port access on Nunavut's Bathurst Inlet, a little less than 100 kilometres away. The next step in making the road happen is finding partners to share the risk. Manojlovic says Sabina could probably build the road on its own, but would "prefer a consortium of other companies and government support to reduce or share the risk."

Cost-sharing is crucial if the North is

to maximize benefits from projects like Hackett River. If these projects develop infrastructure without support from government or from other nearby projects, they will do so with limited capacity and provide limited benefits. In the case of Hackett River, it could make a difference in terms of mine-life. Manojlovic says the already iden-

tified deposit is enough to operate the mine for around 18 years, but he is hopeful that with federal investment and continued drilling, the resource will continue to grow.

The deposit has given the company a growing fan base, with its share price climbing from \$1.25 at the beginning of the year to \$4.50 at press time. CONTINUED...



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## THE SUPER GIANTS CONTINUED

### The anomalous one

Project name: The Anomaly  
Location: Paulatuk, NWT  
Minerals: unknown  
Owner: Darnley Bay Resources  
Earliest possible production date: 2020

The lore surrounding Darnley Bay is fairly widely known in the mining community: A plane flying over the arctic community of Paulatuk, NWT in 1954 had its compass thrown into a tizzy by a huge magnetic force. That force is now known as the Darnley Bay anomaly. Nobody is sure of the cause, but if it is base metals – of a high enough grade and close enough to the surface – it could end up being a super giant.

Comparisons are often drawn between the magnetic activity at Darnley Bay and those that led to huge mineral discoveries and mining operations in Sudbury, Ontario and Norilsk, Russia.

Even compared to either of them, the Darnley Bay anomaly is huge, but let's not get ahead of ourselves. Darnley Bay Resources' corporate presentation begins with the warning that the forward-looking nature of the presentation means a lot could change: the market for base metals, the nature and magnitude of the deposit, and the uncertainties of financing exploration and development. All of this is to say that, as a potential super giant out there on the horizon, Darnley Bay is a little further off than the rest.

Still, the second slide in the company's corporate presentation gets into just how big and how significant this deposit could be. The gravity anomaly is the strongest in North America and may be the largest isolated anomaly in the world. At this point, though, Darnley Bay is not sure what is under the ground causing it.

Initially, the sole focus was on base metal exploration, but since coming across kimberlite indicators in 2000, the company's

**The Darnley Bay gravity anomaly is the strongest in North America and may be the largest isolated anomaly in the world, but nobody's sure what's causing it.**

exploration focus has been split. Using airborne geophysical surveying technology, the company has identified seven drill sites, hoping to find the source of the anomaly within a thousand metres of the surface. There are also 186 kimberlite targets based on magnetic anomalies on the property.

The fact that the anomaly is so close to Paulatuk makes exploration relatively convenient. There is infrastructure such as the air strip and access to fuel. The community also offers the human resources necessary to operate the camp and gather samples. But if Darnley Bay's claim on the anomaly turns out to bear mineral fruit, Paulatuk's Arctic location and the lack of a road will make construction and production difficult. Company CEO Stephen Reford is not holding his breath, and so deliberately understates that, "a road from Inuvik to Paulatuk would be nice."

Covello, similar to Reford, is not yet pushing for infrastructure to support Darnley Bay. It's still a little early. If it is to happen, it is likely a 10 year time horizon, says Covello, but this is still at a highly speculative stage.

Since 1997 the company has spent around \$20-million trying to determine how much mineralization is accessible at Darnley Bay. Ultimately, says Covello, that spending would have to balloon into the hundreds of millions of dollars, if not more, to get a mine running. Again that high cost is tied to the complexity of power generation and transportation so far north. Reford says the magnitude of the anomaly, coupled with the magnitude of the expense, mean, "it's go big or go home because of the infrastructure cost." ☹



■ A Bouguer gravity image of the Darnley Bay anomaly near Paulatuk.



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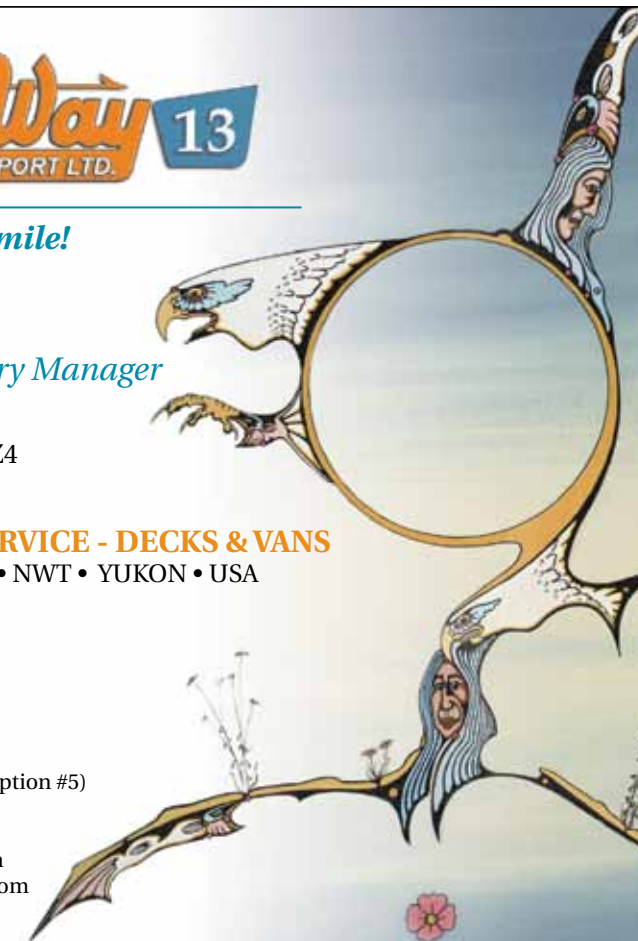
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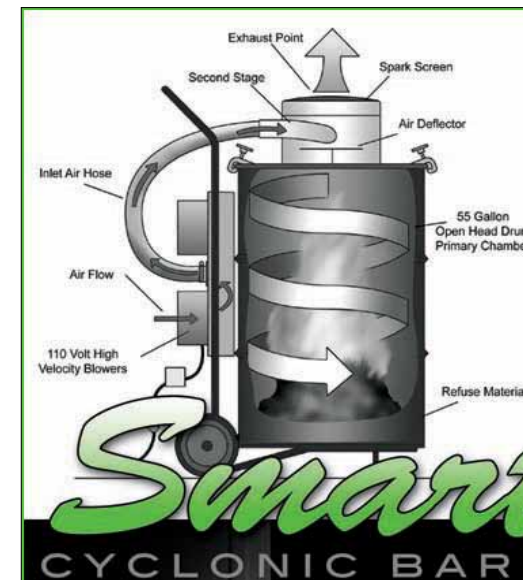
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