

Rich & Rare

Avalon's NWT site has world-scale potential

Photo Report by Northern Correspondent Bill Braden

On a cold evening early last month, after a meal of freshly baked lasagne and crisp caesar salad, the talk around the cozy cook shack at Avalon Rare Metals' Nechalacho camp turns to what makes its rare earth deposit at Thor Lake in the Northwest Territories so remarkable.

"Two fundamental things," says Chris Pedersen, Avalon's affable geologist whose connection with the property goes back some 25 years. "The first one is its size and the second is that it's enriched in the heavy rare earth elements."

Those two factors, and the anticipated doubling of world demand to 200,000 tonnes by 2015, have thrust this deposit near the rocky north shore of Great Slave Lake into the world's strategic metal spotlight almost overnight. Plus China, source of 95 per cent of today's world primary supply, exports only 40 per cent, and wants to keep even more for itself.

Outside the cook shack, the muffled drone of a Foraco diamond drill cuts through the still, -33 C air from across Thor Lake, a 10-minute snowmobile ride away.

It's pulling HQ core from about 200 meters down, tracing a 25-meter-thick zone that's saturated with all 17 of the periodic table's rare-earth chemical elements and metals including scandium, yttrium and the 15 lanthanoids.

Most aren't really "rare" - some of the light rare earths are as common in the earth's crust as nickel or tin - but usually too diluted to mine. The new hunger is for the Heavy Rare Earth Elements (HREEs).

"We have a very high ratio of these very scarce, heavy rare earth elements, more valuable and more sought after by end users," says Don Bubar, Avalon's President and CEO.

A January 2010 release from Avalon announced the indicated mineral resource in the southern part of the Basal Zone is now pegged at 9.00 million tonnes, doubling the estimate of 4.4 million tonnes stated just last August.

Avalon says the Total Rare Earth Oxide (TREO) content is 1.86 per cent of the zone, and of that, 23.1 per cent is HREEs.

That's stellar, when most deposits log under three per cent HREEs, said the UK's Proactive Investor April 2009 newsletter, predicting it could be "one of the largest and richest undeveloped deposits" in the world.

The 2010 drilling program targets up to 10,000 metres of new core, and will see a second larger drill brought in across Great Slave Lake sometime this month.

What's exposed geologically now is just a half-acre of a total claim block of 10,499 acres.

"It is mineralized from top to bottom, particularly enriched in one continuous layer an average of 20 meters thick ... that's open in all directions (about 200 meters below surface)," says Pedersen.

"We don't know the size of this deposit. We only know its minimum and that's huge."

From Avalon's well-stocked web pages (www.avalonraremetals.com), and a look at related sites, it's plain to see REEs are transforming the new, green technologies



Pedersen mentions next.

Consider this: An Apple iPhone uses nine REEs. The generator in a big wind turbine needs a half-tonne of neodymium. A hybrid car needs about 30 kilograms of REE. In permanent magnets for electric motors, tiny amounts of dysprosium can cut their mass by as much as 90 per cent.

The New York Times, in December 2009, described it as one of “the miracle ingredients of green energy products,” adding as well terbium, which can slash energy for lights by 80 per cent.

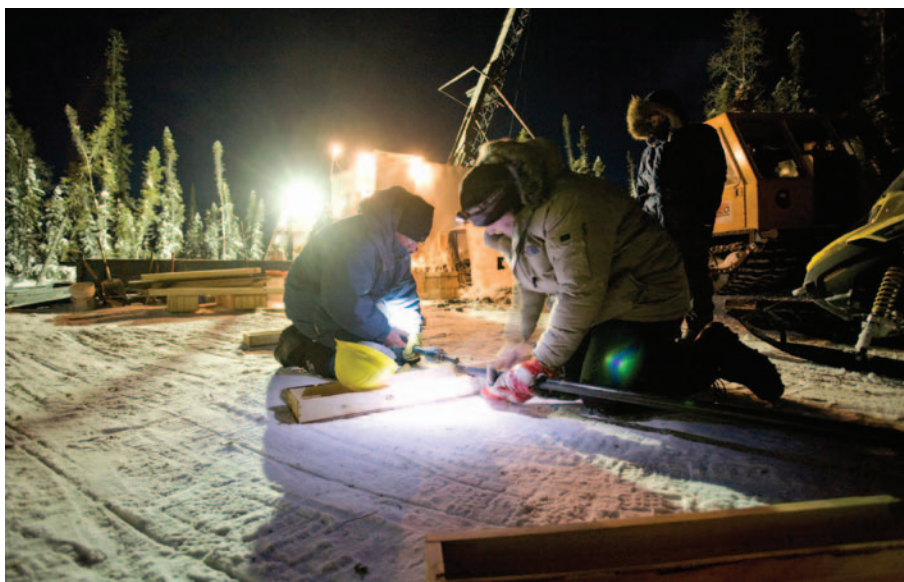
But while prices of these two have surged four to seven times since 2003, the supply chain for REEs, which are not exchange-traded, is far from conventional.

China’s virtual monopoly, and the closure of the principle American producer in 2003, have stirred fears that the Western World’s security and green revolution may be choked back. A worried US Congress has ordered a review of the US reliance on REEs and a proposal for a bill called RESTART (Rare Earths Supply-Chain Technology and Resources Transformation Act 2009) would allocate US\$1.25 billion to jumpstart the industry.

Avalon writes the book on community, aboriginal relations.

While Nechalacho holds world-class potential, it is not yet a mine, and that’s the gap that Don Bubar is trying to bridge.

“Building a new mine is as much an exercise in public relations as it is in making it technically and financially successful,” he



Avalon’s Nechalacho camp stands out during a dark and bitterly cold night at Thor Lake in the Northwest Territories. Despite the cold, crews continue to work on uncovering what has been called one of the largest and richest undeveloped deposits of Heavy Rare Earth Elements (HREE’s) in the world.

says, citing lessons learned in planning Avalon’s Separation Rapids property in 2000. “We made a lot of mistakes in not getting a dialogue going with the local First Nations at the earliest stages of the project. I also know that the NWT is not an easy jurisdiction to work in, and we are determined to not repeat the same mistakes.”

So after taking over the dormant Nechalacho property from Beta Minerals in 2005, and before engaging the NWT’s notoriously cumbersome permitting process, Bubar invested time in simply meeting with people in five different communities.

One outcome was in the fall of 2009, when Avalon flew dozens of leaders, elders and media out to Thor Lake, 100 km southeast of Yellowknife, to formally rename the property Nechalacho (net-chell-AT-cho). In the Weledeh Dene language, it refers to a specific stretch of the north

shore of Great Slave Lake near the deposit. The name is on loan to Avalon.

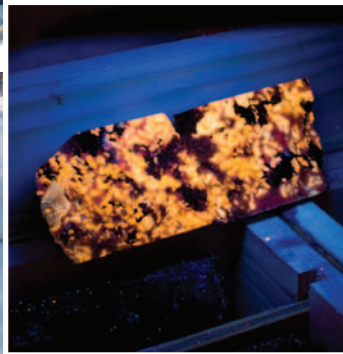
Avalon and other industry partners are also investing in training programs through the NWT Mine Training Society.

Anticipating the need to negotiate with impacted communities, Avalon has offered “to come to the table and talk about what an Impact and Benefit Agreement might look like, and what a participation (equity) agreement could look like,” says David Connelly, Avalon’s community relations advisor.

“Avalon has uniquely defined itself in aboriginal and community engagement,” says Connelly.

For Yellowknives Dene N’dilo Chief Ted Tsetta, Avalon’s doing things better than many explorers “to a point” and he won’t comment on their offers until his Council and their 1400 members have a





Boxes and boxes of core samples have already been carefully identified, sorted and stored on site. This year's drilling program calls for an additional 10,000 metres of new core.

chance to consider them.

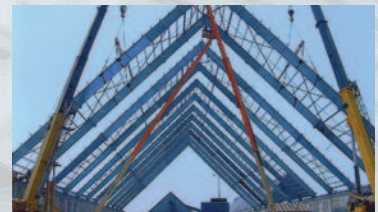
He is absolutely firm in his conviction that the project is on Yellowknives traditional lands, is subject to Treaty rights, and that his people have to get "first priority" before any other region or community in benefits

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such as jobs and business opportunities.

"We will take the lead on every part of these mining activities and negotiations," he says. "Other groups can come in later... with the help of Avalon, we'll move this project forward together."

On the national front, Bubar co-chairs PDAC's Aboriginal Affairs Committee with First Nations leaders, while his chief geologist Dr. Bill Mercer helped write PDAC's voluntary e3 Plus principles for mining in Canada. Avalon was the first junior company to adopt them as company policy.

The work has earned the Avalon team PDAC's 2010 Environmental and Social Responsibility Award (alongside De Beers Canada for its own unrelated programs).

Expecting a lengthy permitting process, Bubar estimates Avalon is perhaps four years from being a "bankable" project. He has brought on David Swisher, recently of Tamerlane Ventures, as VP Operations, to steer Avalon's permitting.

But there are many decisions still ahead: collecting a bulk sample (by drilling or underground); defining the best way to

crack the REE metallurgy (several known, now testing for the most economical); sorting out transportation (likely summer supply by road-rail-barge from Hay River); and completion of a pre-feasibility study and flow-sheet by spring 2010.

The enormous cost of energy is the black hole that every northern miner stares into, but the site is along a potential route for a proposed hydro transmission line to the diamond mines, and with only eight kilometres to Great Slave Lake, it has shipping advantages other deposits envy.

That windy shoreline could also manifest itself into one of Bubar's green visions: wind turbines spinning out the kilowatts to make more REEs for more turbines. A wind regime measuring program is already in place, partnered with the Yellowknives.

Avalon also hopes to see the value-added stage of refining the concentrates stay in the north.

With all these expectations, can Avalon do it on its own?

"Yes, we're pretty confident we can," says Don Bubar, qualifying a 2,000-ton-

A makeshift distance marker lets the Avalon's crew know how far away they are by plane from home and other points of interest.

ne-per-day project. Finding customers is a priority and he doesn't rule out attracting a downstream user into the business as a strategic partner.

"The first [new REE mine] to come into production will capture a lot of the market share," he predicts.

And his vision for Nechalacho goes beyond making a successful mine.

"To take the deposit to production ourselves... it'll be the first of its kind for the NWT, and for Canada. It will contribute in so many ways, facilitating new materials for new technologies, and establish and foster new precedents. And, to be remembered for it."

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