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The Race Is On

The Race Is On For Uranium **Mining** *for Uranium Exploration in Alberta*

BY SHELLY BRIMBLE

Throughout densely forested regions in northeastern Alberta and the undulating foothills south of Calgary there is a new “rush” for mineral resources. Geologists and engineers are conducting field tests seeking the grand prize - uranium. This resource-rich province has long been known for its petroleum reserves, but as global prices and demand for uranium continue to rise, so does interest in the untapped reserves throughout the province.

Investors watching mining stocks know first-hand that most firms involved in uranium exploration and production have experienced a recent doubling in their stock value. The stock prices have been driven by the rapidly rising value of uranium. Similar to petroleum resources, the price for uranium has been climbing from US\$8/lb in 2002, now fetching more than US\$38/lb.

“Investors are flocking to mining companies that have uranium exposure because of the long-term price outlook,” says Lori Walton, president of Firestone Ventures Inc. from her Edmonton-based office.

Industry experts concur that uranium pricing is expected to continue to be strong both now and in the future due to a situation where demand continues to outstrip supply.

The primary use for uranium continues to be energy production for the end-consumer. According to the Canadian Nuclear Association, nuclear energy in Canada generates about 16 per cent of the nation’s electricity and almost half of Ontario’s.

Existing nuclear energy production is already outstripping global demand which is expected to be about 178 million pounds. The total output from existing mines is currently 105.5 million pounds, so nuclear utility generators are snapping up supply to ensure they will have enough to meet rising demands. With demand growing 1.1 per cent per year and very few new supplies coming online, the price is reflecting the current situation. The world’s largest uranium producer, Saskatoon-based Cameco Corporation, expects demand will continue to outpace existing supply throughout the next 10 years by more than 400 million pounds. Currently many new reactors are being built or considered throughout the world, further stretching existing supply.

The supply shortage is not new “news” since there has been a shortage in uranium for some time. That global shortcoming has been artificially filled in part by the United States’ program to decommission Russian warheads, known as Megatons to Megawatts. To-date, the program has deactivated and reused the uranium in over 7,000 missiles. When the program is completed in

2013, 500 metric tons of Russian nuclear warhead material (the equivalent of 20,000 warheads) will have been recycled into enough fuel to power the entire U.S. for about two years.

Add to the supply crunch the global focus to reduce greenhouse gas emissions, and nuclear energy is becoming a more prominent choice further driving the demand for uranium resources. Advancements in safety and production techniques have made nuclear energy a safer and cleaner choice. About eight kilograms of U-235 (a uranium isotope) generate the same electrical power as 20 million kilograms of coal. In terms of waste production, the Canadian Nuclear Association reports the total amount of nuclear waste produced in 40 years from nuclear power plants in Canada would fill five hockey rinks up to the height of the boards, but it does not pollute the air.

The recent rise in petroleum pricing has also been forcing countries throughout the world to explore alternative energy sources. With rising greenhouse gas emissions and many nations’ commitment to the Kyoto Accord, the new energy alternatives have to be more environmentally friendly. “Many countries that shied away from nuclear energy are now taking a second look at it,” says Walton.

Canada is already a global leader in uranium production according to Natural Resources Canada. The nation’s output in 2004 was 13,676 tonnes of uranium oxide concentrate (11,597 tonnes U) representing about 30 per cent of total world production at a value of about CDN\$800 million. Most of this production is generated from two new mines in Saskatchewan. Economically, the mining and milling of uranium has grown to a \$500-million-a-year industry that directly employs over 1,000 Canadians - many of whom are residents of northern Saskatchewan.

But uranium mining activity is soon expected to spill over into Alberta. Like all commodities, resource development of Alberta’s uranium has had its highs and lows. The last major push for uranium was during the Trudeau era when many oil and gas companies had their own mineral exploration divisions that employed geologists. These rock gurus were sent throughout the province focusing millions of dollars on mineral exploration. As oil prices dove in the 1980s, so did these mineral divisions along with any plans to further develop the resources. Now many local junior mining companies are picking up where these forerunners left off.

Although uranium exploration is currently in its infancy in Alberta, many recent developments are moving both industry and government strategies to the next level. Due to increased pressure on energy suppliers, the Geological Survey of Canada under Earth Sciences Section has established a new Uranium Resources in Canada project. Still in its initial planning stages, the project is investigating stakeholder consultations as well as a review of uranium knowledge and potential. Through this project, fieldwork



will be created to improve both known and frontier areas. The Geological Survey of Canada will be presenting the keynote address focusing on uranium during the upcoming Calgary Mining Forum, April 25, at the Ramada Hotel.

As exploration interest continues to be driven by strong commodity pricing for uranium, so does the need for more advanced and organized geographical information. As a result, the Alberta Geological Survey is currently conducting a study of the Alberta portion of the Athabasca Basin and the adjacent crystalline basement.

With the average lifecycle of a uranium project being about 10 years from exploration to production, new sources of uranium from Alberta will take some time to get on-stream. A lot of public consultation and environmental studies are required before mining companies can even begin to even think about moving into the production phase.

In Alberta, uranium is found either in high quality reserves in the Athabasca Basin or in sandstone hosted deposits which is where a lot of junior mining companies are focusing their exploration resources on. "The Athabasca Basin is the Saudi Arabia of uranium because it has the richest deposits in the world," says Jim Letourneau, publisher of the Calgary-based Big Picture Speculator - a newsletter that identifies strong market sectors and then features individual companies within these sectors. Letourneau, a mining investment specialist and geologist, is scheduled to deliver a speech on uranium development during the upcoming 2006 Calgary Resource Investment Conference, April 23 to 24 at the Telus Convention Centre. The event is free for pre-registered attendees and registration can be done online at www.cambridgehouse.ca.

The Athabasca Basin straddles the Alberta-Saskatchewan border in the northeastern corner of the province and is considered one of the most favourable places in the world for exploring and mining uranium. Already the largest uranium mines in the world have been discovered within the Athabasca Basin in the Saskatchewan region and are being mined by Cameco Corporation and Cogema, Inc. The stakes are high in the Athabasca Basin as developmental costs are much higher in remote areas.

Additional uranium reserves have also been identified at the base of the Athabasca Group where steep brittle fractures in sandstone host disseminated to high-grade uraninite (U₃O₈ concentrations up to 40 per cent have been reported). Due to the strong uranium prices, large portions of the basin in northeastern Alberta, south of Lake Athabasca, were staked in 2002, and following in 2004, much of the geologically favourable land along the northern shore of the lake was also staked.

Uranium potential also exists in Alberta's "roll-front" uranium deposits in southwestern region of the province, below the rolling foothills at the Montana border. This type of sandstone-hosted uranium deposits account for about 13 per cent of



Lori Walton, president of Firestone Ventures Inc.



Jim Letourneau, publisher of Big Picture Speculator



Charles Desjardins, president of North American Gem

global uranium production. Roll-front uranium deposits can be produced using techniques similar to the process used to produce coalbed methane. A grouping of tightly spaced wells are drilled, then a solution is injected that helps separate the uranium from the formation and bring it to surface in a method known as in situ leach. Once the well pad production is complete, producers simply move this strategy to the next production target zone. The method is less invasive and requires far less set up costs so it has become an attractive target for many junior mining companies. This low-cost and low-impact injection-solution (ISL) uranium mining method has already been field trialed at Cameco's Crow Butte mine in Nebraska and the Smith Ranch-Highland mine in Wyoming.

Mining companies are now striving to identify viable roll-front uranium targets in Alberta. Firestone Ventures is seeking sandstone-hosted uranium 30 km south of Fort Macleod. The company holds a 100 per cent interest in more than 100,000 acres of land that it believes contains roll front uranium deposits. Phase One of the project was completed last fall focusing on stratigraphic interpretation through field examination to identify favourable production zones for the sandstone hosted uranium deposits. Walton says that a lot of Firestone's preliminary work is being done in the library since the resource development is young and not a lot of detailed analysis is available yet.

Calgary-based Marum Resources Inc. is also searching for roll-front uranium at its Fort Macleod property that covers 368 square km. The company has been granted Alberta Minerals Permits and it will hold a 100 per cent interest in the permits. The permits cover two large sandstone-hosted, roll-front uranium exploration projects in the Fort Macleod and Crowsnest areas of southern Alberta.

Vancouver-based North American Gem is exploring its 44,400-acre Whiskey Gap uranium property located in southern Alberta along the Canada/U.S. border. The project, now in Phase Two has potential for sandstone-hosted uranium that could be produced using the in situ leach method. "This method is great environmentally and very cost-effective," says Charles Desjardins, company president and director. He reports that initial results from Phase One are promising and test results have revealed radioactivity up to five metres thick in some tested zones. He added that if the project proceeds, it will not only improve the water quality in the area but it will also create local jobs and generate economic diversification.

These are just a few of about 100 companies that are competing for the grand prize of uranium. Just like petroleum reserves, there will be many potential uranium resources to be found and developed throughout Alberta. The ultimate winners of this precious prize will eventually evolve, but for now many mining companies are enjoying the commodity chase. **BIC**



Whiskey Gap uranium property

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