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## Canadian uranium beyond the Basin

By *Stephen Stakiw*

Vancouver -- For most, uranium mining in Canada is synonymous with northern Saskatchewan, yet many other areas of the country are prospective for the energy-generating element.

Heightened worldwide demand for uranium has caused the price to soar and, along with it, the exploration budgets of companies looking to test both new and proven deposit models in almost every province and territory.

Nfld and Labrador

Uranium exploration is booming in Labrador with an abundance of companies taking up the search.

The Central Mineral Belt (CMB), first explored for uranium in the 1950s, is a Proterozoic belt of volcanic, plutonic and sedimentary rocks hosting a significant number of uranium and base metal occurrences.

**Altius Minerals** (ALS-V) and partner **Fronteer Development** (FRG-V) are exploring the eastern portion of the CMB. The pair is targeting iron-oxide/copper/gold (IOCG) occurrences for uranium potential, with several projects turning up significant grades of U<sub>3</sub>O<sub>8</sub>.

The partners completed extensive airborne magnetic and radiometric surveys that turned up eight major targets. Surface sampling returned grades of up to 13.3% U<sub>3</sub>O<sub>8</sub> with an overall average of 0.2% U<sub>3</sub>O<sub>8</sub> from 350 samples. The most advanced project, Michelin, has a historic resource of 6.4 million tonnes grading 0.13% U<sub>3</sub>O<sub>8</sub>, based on more than 300 drill holes and underground exploration workings.

**Crosshair Exploration & Mining** (CXX-V) is building on a historical resource at its Moran Lake project, also in the CMB. In the mid-1970s, Shell Canada drilling returned grades of up to 0.56% U<sub>3</sub>O<sub>8</sub> over 4 metres. The oil major calculated an inferred geological resource of almost 500,000 tonnes grading 0.1% U<sub>3</sub>O<sub>8</sub>

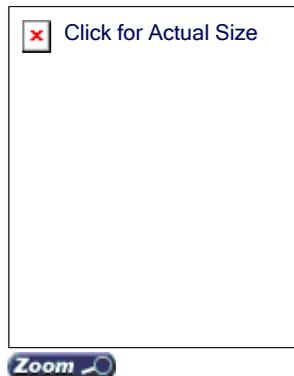
### Companies in this story

[Alberta Star Development Corp](#)  
[Altius Minerals Corporation](#)  
[Cameco Corporation](#)  
[CanAlaska Ventures Ltd](#)  
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[Cash Minerals Ltd](#)  
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[Strathmore Minerals Corp](#)

(1.1 million lbs. U<sub>3</sub>O<sub>8</sub> contained) in the Upper C zone. Shell also estimated the Lower C zone held a potential resource of 8.3 million tonnes averaging 0.03% U<sub>3</sub>O<sub>8</sub> (almost 5 million lbs.). The calculations were conducted prior to the implementation of National Instrument 43-101.

[Terex Resources Inc](#)  
[Triex Minerals Corporation](#)  
[Uravan Minerals Inc](#)  
[Ursa Major Minerals Incorporated](#)  
[Waseco Resources Inc](#)

Other uranium explorers in the CMB include joint-venture partners **Monster Copper** (MNS-V) and **Santoy Resources** (SAN-V) on the Bruce River and Mustang Lake projects. Mustang Lake hosts a 500-metre-long angular-to-sub-angular boulder train averaging 1.3% U<sub>3</sub>O<sub>8</sub> (from 117 boulders).



Near the northern tip of Labrador, **Waseco Resources** (WRI-V) holds a 105-sq.-km land position in the Quebec-Labrador trough, which both Uranerz and Eldorado Nuclear had explored in the 1980s. Uranium mineralization (pitchblende) is hosted in stratabound sedimentary units and also vein structures and pegmatites. Mineral assemblages support the possibility that the area may host IOCG-type deposits.

**Commander Resources** (CMD-V) recently acquired the Blue Hills and White Bear uranium projects in southwestern Newfoundland. Shell Canada and the Central Electricity Generating Board, now part of **Cameco** (CCO-T), explored the property in the 1980s, identifying several uranium occurrences and mineralized boulder trains.

**Exploration crews from Altius Minerals and Fronteer Development investigate a cleared outcrop on the Melody Lake target, part of the Central Mineral Belt in Labrador.**

Expanding its footprint beyond the Athabasca Basin, **JNR Resources** (JNN-V) is earning a 70% interest in the Rocky Brook project from Altius Minerals. Recent exploration by Altius and Cameco identified a 1.5-km-long uranium-in-till anomaly.

## New Brunswick

Occurrences of granitic-, stratabound volcanogenic- and sedimentary (roll front)-hosted uranium mineralization exist throughout the province. Government surveys coupled with exploration efforts by a number of major companies in the 1970s and 1980s identified 35 primary uranium occurrences.

## Quebec

Exploration for uranium has also risen in Quebec.

**Globex Mining Enterprises** (GMX-T) holds the Hunters Point project in Atwater Twp. Significant uranium and gold grades were obtained in grab samples from the sedimentary-hosted environment, and several drill programs were undertaken in the 1950s and 1960s, coupled with some underground exploration. Although the project has been largely idle since 1985, Globex recently expanded its land position in the area.

**Interactive Exploration** (ITV-V) has optioned the Kert project, 60 km northwest of Ottawa. A mineralized body with significant copper, molybdenum, iron and uranium occurs in a pegmatite, along with metamorphic pyroxenite and granitized paragneiss.

Adding uranium to its roster of Quebec exploration projects, **Strateco Resources** (RSC-V) has acquired a property 40 km northeast of Mont-Laurier. The area was explored extensively from the late 1960s to the early 1980s following the 1967 discovery of uranium by Johns Manville. Mineralization primarily occurs as uraninite in pegmatites and intercalated quartzites and gneisses.

In late 2004 **Golden Valley Mines** (GZZ-V) staked more than 200 sq. km of prospective uranium ground in the Otish and Mistassini Basins of north-central Quebec. Past exploration in the late 1970s identified several uranium occurrences.

**Majescor Resources** (MAJ-V) holds the Upsilon and Phantom Lake uranium projects in the Otish Basin. The projects were discovered during the company's diamond exploration program, and grades of up to 0.24% U<sub>3</sub>O<sub>8</sub> over 3.2 metres were encountered in drill core. Being a diamond-focused company, Majescor plans to farm out the uranium potential of its properties.

**Quinto Technology** (QU-V) recently picked up a uranium project in Quebec's northern-coast region from privately owned Exploration Esbec.

**Starfire Minerals** (SFR-V) has optioned a couple of uranium projects in the province. Between 1954 and 1977, the Capri prospect, near Gran Remous, about 220 km north of Ottawa, was explored by means of trenching and drilling. The second project, the Cross Structure, is near Havre-St. Pierre and hosts sheared granitic rocks and pegmatites with mineralized showings demonstrating high radioactivity.

The Dieter Lake uranium deposit in north-central Quebec is held by **Strathmore Minerals** (STM-V). Exploration by Uranerz in the 1970s and 1980s included airborne and ground geophysics, surface sampling and drilling. A possible resource of 9-14 million tonnes grading 0.25% U<sub>3</sub>O<sub>8</sub> was estimated from at least 135 drill holes. The estimate predates National Instrument 43-101.

## Ontario

The rally in the uranium price has triggered an exploration resurgence in Ontario, which had once been the uranium capital of the world (during the heyday of Elliot Lake).

The Sibley (Nipigon) Basin structure, near Thunder Bay, is of a comparable age to that of the Athabasca Basin and contains sandstones and conglomerates, as well as faulting and graphitic conductors, which could control uranium deposition. The area is attracting a large number of explorers.

**Cascadia International Resources** (CJ-V) recently entered into an option agreement to earn 51% of the Midway project, in the Havoc Lake area of the Sibley Basin, from **East West Resource** (EWR-V). Cascadia is drilling the property, which also shows some IOCG-type mineralogy.

East West recently expanded its Armstrong project, north of the Sibley Basin, so that it now comprises 100 sq. km. Drilling is planned.

In late 2004, **Maple Minerals** (MPM-V) and East West acquired two projects in the Sibley Basin. Uraninite mineralization occurs in pegmatites with small high-grade pitchblende stringers assaying up to 27% U<sub>3</sub>O<sub>8</sub>. The basin structure has the Sibley sandstone on basement rocks plus indications of a possible IOCG setting.

Also delving into the Sibley Basin is **Rampart Ventures** (RPT-V), which is earning a 70% interest in the Wolfpup Lake and Black Sturgeon West projects from **New Shoshoni Ventures** (NSV-V). Prior work by the Ontario Geological Survey and Uranerz returned high-grade pitchblende vein values of up to 12% U<sub>3</sub>O<sub>8</sub>.

The Elliot Lake district is attracting some companies looking to re-examine the prolific uranium camp. The district's mines have produced almost 130 million tonnes of ore averaging 0.09% U<sub>3</sub>O<sub>8</sub> for a total of more than 250 million lbs. of production.

In early 2005, **Quincy Gold** (QGO-V) optioned a Buckles Twp. claim group from Canada

Enerco. Drilling of 31 holes by previous operators resulted in an indicated resource of 1.2 million tonnes averaging 0.07% U<sub>3</sub>O<sub>8</sub> plus 4.8 million tonnes of drill-indicated material grading 0.06% U<sub>3</sub>O<sub>8</sub>. The estimates predate National Instrument 43-101.

**Terex Resources** (TRR-V) has shifted its exploration effort from copper, gold, nickel and platinum group metals to uranium on its Platina project, 20 km southeast of Elliot Lake. The project hosts portions of the Millaqua-Pardee and Pecors uranium deposits. Historic drilling has identified unconformity-style mineralization similar to that found in the Athabasca Basin.

Staking in the Elliot Lake area has enabled **CanAlaska Ventures** (CVV-V) to outline the Pardee deposit. The deposit has a drill-indicated resource of 4.9 million tonnes grading 0.07% U<sub>3</sub>O<sub>8</sub>. Mineralization occurs in a quartz-pebble conglomerate in the basal portion of the Matinenda formation.

More and more companies are examining their Sudbury-area holdings for uranium potential. The region has enjoyed past production and shares some similarities with the Elliot Lake camp.

A strategic staking extension to its nickel projects in 2002 has given **Ursa Major Minerals** (UMJ-V) the past-producing Agnew Lake uranium mine, 40 km west of Sudbury. The underground mine was operated by Kerr Addison, now part of **Noranda** (NRD-T), from 1977 to 1983, during which time it produced 1.1 million lbs. U<sub>3</sub>O<sub>8</sub> from 2.8 million tonnes of ore. Historic, pre-National Instrument 43-101, reserves of 8.1 million tonnes grading 0.04% U<sub>3</sub>O<sub>8</sub> remained after operations ceased. Agnew Lake mineralization occurs in a pyritic quartz-pebble conglomerate similar to the Elliot Lake deposits.

**Falcon Ventures** (FIX-V) has entered an option to acquire nickel and uranium prospective claims in the Sudbury area.

In addition to its Quebec uranium holdings, Starfire Minerals has optioned the Stobie Lake claim group, 60 km northeast of Sudbury. The company plans a summer 2005 program to test known uranium mineralization in a stratigraphic zone within a basal wedge of Precambrian sediments.

**El Nino Ventures** (ELN.H-V) has jumped into the uranium game by optioning eight projects in the Bancroft area of southeastern Ontario. Four past-producing mines operated between the mid-1950s and the early 1980s.

#### Manitoba

Limited uranium exploration is occurring in Manitoba.

**Neuer Kapital** (NEU.H-V) recently optioned the Boulder Lake project in the northwestern part of the province. Historic drilling produced grades of up to 0.5% U<sub>3</sub>O<sub>8</sub> over 1.5 metres. Current drill targets include a mineralized boulder train, a radon gas anomaly, and large airborne radiation anomalies.

**RJK Explorations** (RJK.SV.A-V) has staked a Churchill-area claim group with known uranium and gold occurrences. Mineralization is hosted in Omarolluk Formation sediments consisting of quartzite and quartz-pebble conglomerates.

#### NWT and Nunavut

The territories have received extensive uranium exploration and development. The two most prevalent deposit models are unconformity-style and IOCG.

**Alberta Star Development** (ASX-V) is exploring the MacInnes Lake project, in the Nonacho Basin, 275 km southeast of Yellowknife. Since the mid-1950s, high-grade uranium showings have been discovered in the Proterozoic sandstone terrane, which rests unconformably on

Archean basement formations. The company recently optioned half the project to **Max Resource** (MXR-V).

Alberta Star also holds the Longtom Lake IOCG project, in the Great Bear magmatic zone of the Northwest Territories. Fronteer Development is earning a 75% interest in the project and has, in turn, granted **Northwestern Mineral Ventures** (NWT-V) an option for 50%.

Looking to capitalize on the hot uranium market, **Diamonds North Resources** (DDN-V) has optioned its Thelon Basin landholdings to **Pathfinder Resources** (PHR-V). The Thelon Basin, 500 km east of Yellowknife, is geologically similar to the Athabasca Basin and has attracted an increasing number of explorers -- for example, **Uravan Minerals** (UVN-V), which holds the advanced-stage Boomerang project. Exploration between the mid-1970s and the late 1990s identified unconformity-type uranium and polymetallic mineralization in sandstones. Drilling returned grades of up to 0.5% U<sub>3</sub>O<sub>8</sub> and 22.4 grams gold per tonne over half a metre. The company recently expanded its land position in the area.

As well, **Ceduna Capital** (CUN.H-V) recently optioned a Thelon-area uranium project in Nunavut.

In the Coronation Gulf region of Nunavut, **Hornby Bay Exploration** (HBE-V) continues to explore the Coppermine River and Asiatic River projects, both of which are situated over portions of the Proterozoic Hornby Bay Basin, which hosts known uranium mineralization in sandstone units.

Also active in the Great Bear Lake region is **Triex Minerals** (TXM-V) with its Mountain Lake, Dismal Lake and Leith Peninsula projects. A National Instrument 43-101-compliant report on Mountain Lake mentions an inferred resource of 1.6 million tonnes grading 0.23% U<sub>3</sub>O<sub>8</sub> in the stratabound sediment-hosted deposit.

In late-2004 **Yankee Hat Industries** (KHT-V) entered into an agreement to acquire a half-interest in a project that comprises 70,000 sq. km in the Great Bear Lake area.

## Yukon

Junior explorers are also sizing up the uranium potential of the Yukon, which is known for its IOCG-prospective environments.

**Twenty-Seven Capital** (TSC-V) acquired several projects from **Strategic Metals** (SMD-V), six of which have been optioned to **Cash Minerals** (CHX-V). The Wernecke-area Pterd, Igor, Bond and Steel properties are in the northeast, the Pedlar is in west-central Yukon, and the Alle is in the southeast. All are being explored by Cash. Past exploration by majors identified high-grade U<sub>3</sub>O<sub>8</sub> in boulders and several mineralized iron-oxide rich breccia bodies.

Twenty-Seven Capital retains its Wernecke-area Pike project, which hosts IOCG-type mineralization plus gold with pitchblende and brannerite in quartz veins peripheral to the breccia body.

## Alberta

**Firestone Ventures** (FV-V) recently acquired the Alberta Sun project in the southwestern portion of the province. The area hosts Cretaceous-to-Tertiary Willow Creek Formation sandstones known to host uranium mineralization. The environment is thought to be prospective for roll-front-type uranium mineralization.

In the same region, **Marum Resources** (MMU-V) is exploring the Fort MacLeod project, which covers an area of potential roll-front mineralization.

## British Columbia

Many are unaware that British Columbia's moratorium on uranium exploration, implemented in 1980, expired in 1987. The province has had an active uranium exploration past, especially in the 1970s, when several significant discoveries were made in the southern interior.

The Blizzard uranium deposit, in the southern Okanagan Valley, was first staked by Lacana Mining in 1976 and optioned to a group including Norcen Energy, Campbell Chibougamau Mines, E & B Explorations and Ontario Hydro. More than 21,000 metres of drilling in almost 500 holes led to a reserve estimate of 2.2 million tonnes grading 0.21% U<sub>3</sub>O<sub>8</sub>. The calculation predates NI 43-101.

Several companies are now re-examining British Columbia's uranium potential

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