

British Columbia

MINING

Black Crystal
880863

The current surge in exploration is bound to result in more mines being developed, providing new wealth and high paying jobs for the province

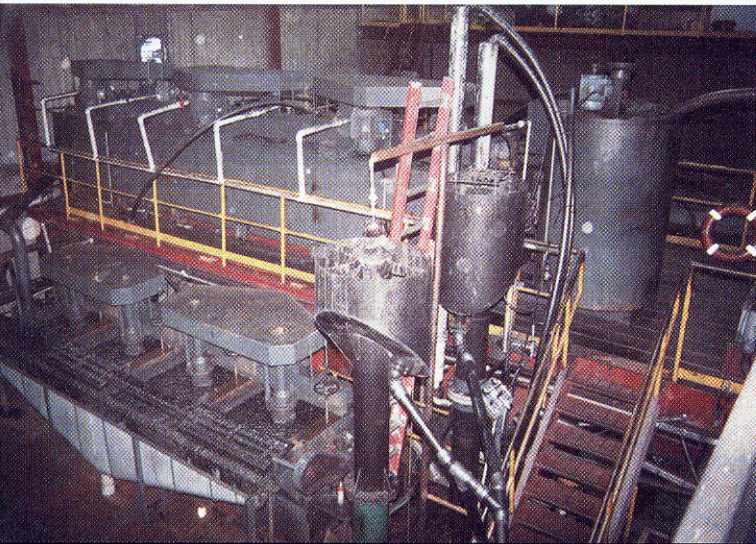
by Ellsworth Dickson

British Columbia was built on mining. In the mid-1800s, the coalmines on Vancouver Island and the placer gold camps of the Cariboo became the building blocks for economic growth in Canada's most western province. To date, some 145 past-producing metal mines have generated over \$100,000,000,000 in year 2000 dollars, unfortunately, in past 10 years, for every mine that opened, two have closed.

The Highland Valley open pit copper mine near Logan Lake, 63.9% owned by Teck Cominco Ltd. [TEK.B-TSX]/ 33.6% by BHP Billiton [BHP-NY], continues to be a major producer. For the third quarter 2003, the mine produced 43,500 tonnes of copper in concentrate from ore grading 0.40% copper. Recoveries averaged 89%. The mine is also a significant produce of molybdenum with sales of 1.8 million pounds compared with 1.2 million pounds in the third quarter of 2002.

The underground Eskay Creek gold-silver mine of Barrick Gold Corp. [ABX-TSX] north of Stewart continues to produce at a record pace. In 2002, the mine produced 358,718 ounces of gold and 17.8 million ounces of silver at a low total cash cost of US \$40 per ounce of gold. Another record year is expected for 2003 of some 363,000 ounces of gold and 16.6 million ounces of silver.

A relatively new operation, the **Black Crystal** graphite mine of Crystal Graphite Corp. [CYTGF-OTC BB] is now producing high purity (97% - 99.5%) natural graphite products, primarily for the fuel cell industry. Located in the Slocan Valley near Nelson, southeast BC, the company is currently excavating and transporting over 2,500 tonnes of graphitic material to the plant site to assure sufficient plant feed for the first half of 2004. The company has an alliance with Advanced Material Composites, LLC of Kentucky to supply graphite for bi-polar plate components for E-Fuel Technology Ltd., a leading UK developer of Redox Fuel Cell systems.



(above) The froth flotation cells at the Black Crystal Mine graphite processing plant near Nelson, BC. (right) Mining activity at Crystal Graphite's Black Crystal graphite mine. Photos courtesy Crystal Graphite Corp.

A recent PriceWaterhouseCoopers survey reported that gross BC mining revenues decreased 5% to 3.53 billion in 2002, down from \$3.70 billion in 2001. However, the mining industry earned net income after-tax in 2002 of \$107 million, a \$46 million increase from the after-tax income of \$61 million in 2001. The report stated that mining continues to be a significant, but declining employer in BC with 6,729 direct jobs. However, mining is a cyclical industry and the current upturn in exploration will, in time, lead to more mines being placed into production. Coal continues to be an important mineral for BC. In 2002 the province produced 24 million tonnes of coal (36% of Canada's total production) worth \$1,024 million. A recent addition has been **Compliance Energy Corp.** [CEC-TSXV] with its Basin Coal Mine near Princeton.



In the Business of Discovery

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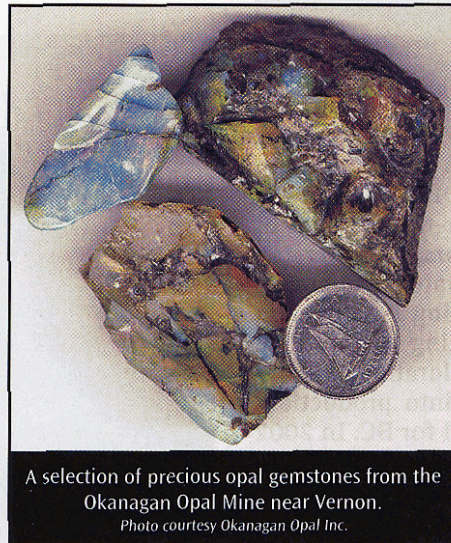
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RIMFIRE
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RFM:TSX-V

Crystal Graphite recently signed a letter of intent with the local government of Shanxi Province, China that could lead to the eventual operation of the DaTong DeSheng graphite plant. The company wishes to develop business relationships in China to mine and process graphite for fuel cell grade products. The DaTong deposit is the only graphite source Crystal Graphite has found that has similar characteristics to its Black Crystal graphite. Gordon Sales, president, says tests will be conducted on the DaTong DeSheng graphite to design an optimal processing system similar to its Black Crystal mine.

One of the more interesting projects is the opal mine of Okanagan Opal Inc. near Vernon. The operation is Canada's first precious opal producer and is in the final stages of preparing for full commercial production. Operations began in August 2002 to provide raw product for creation of finished opal product to meet 2003 retail market needs. Robert Yorke-Hardy, president, says that between 1994 and 1999, the company conducted extensive

exploration, bulk sampling, product testing and proto-type product development programs. Designing and test marketing of opal jewellery began in 1996. Okanagan Opal holds a 30-year Mineral Lease covering the main precious opal producing area. An annual production rate of 7,500 gemstones is targeted within two to three years with production expected to increase to 15,000 gemstones by




A selection of precious opal gemstones from the Okanagan Opal Mine near Vernon.
Photo courtesy Okanagan Opal Inc.

year five, providing seven to 10 full time jobs.

Opal reserves within the explored area are sufficient to meet the company's needs for seven to 10 years. Over time, the company anticipates exporting opal products to Asia, Europe and the United States.

Located about 123 km southwest of Houston, west-central BC, the 50%-owned Huckleberry Mine of Imperial Metals Corp. [III-TSX] produced 34.8 million pounds of copper and 173,876 pounds of molybdenum for the six months ended June 30, 2003. Imperial Metals has had its Mt. Polley Mine near Williams Lake on a care and maintenance basis since September 2001. No date has been set to reopen the mine that has been awaiting higher metal prices.

The Endako Mine near the town of Fraser Lake continues to produce molybdenum from a daily mill input of 28,000 tonnes of ore per day from three separate open pits. The operation is owned by Thompson Creek Metals Co. and Nissho Iwai Moly Resources Inc. 

TGS → Black Crystal
→ Nazko

Crystal Graphite Producing Graphite & Pumice

by Kristina Walcott

Lying in a complex geological environment in the Valhalla Range of the southern Selkirk Mountains of British Columbia is North America's only producer of high purity flake graphite – the Black Crystal graphite mine of Crystal Graphite Corp. (CGC) [CYTG-CNQ; CYTGF-OTCBB].

Graphite is one of two natural forms of carbon, the other being its flashy sister, diamond. Graphite is a soft non-metallic mineral which occurs in three principal forms - flake, crystalline and amorphous. Strongly resistant to corrosion, it is an excellent conductor of heat with a melting point of 3,550°C. It is increasingly used in the automotive and chemical industries with other high-tech applications emerging. The flake form such as that found at CGC's Black Crystal deposit is found only in a few locations in the world. Flake graphite occurs when the carbon atoms link together to form flat sheets. The larger the flake the purer the graphite and the higher the price it commands on the world market.

Over the past five years demand for this limited form of graphite has soared by some 40%. Increased technological uses are largely responsible and CGC has been quick to position itself as a leading producer of high quality graphite. With its self lubricating, flame retardant, and highly corrosion resistant qualities, it is not surprising that new applications for flake graphite are rapidly evolving.

As part of its development strategy, CGC is focussed on increasing the graphitic purity in order to more aggressively pursue the burgeoning fuel cell industry, a major consumer of high purity graphite. Approximately 85% of the graphite produced by CGC from the Black Crystal deposit will be fuel cell grade. CGC has completed sales to major players within the fuel cell industry and several other potential manufacturers of bi-polar plates within the fuel cell industry are testing the suitability of CGC's product.

At present the plant has the capacity to produce about 400 tonnes/year of high quality graphite and CGC has received market prices of US \$2,500/tonne for its high purity flake graphite. Average graphite prices in the US are about \$1,000/tonne for non high-tech applications. Production is based on product demand and can be increased at minimal capital cost and by the addition of further shifts. With one industrial mineral operation well in hand, this past April Crystal Graphite solidified its position as an industrial mineral producer in BC with the acquisition of Canada Pumice Corp. (CPC) and its Nazko volcanic material deposit. The acquisition combines two industrial mineral resources in BC with similar operations. Both operations are quarries and are environmentally benign.

The Nazko volcanic material aggregate deposit contains approximately

29,265,000 tonnes of proven material and, at its current production license of 100,000 tonnes/year, has an estimated life of 290 years. Unlike many volcanic aggregate deposits, Nazko possesses several different types of aggregate. This diversity is ideally suited to Crystal Graphite's development strategy, as it not only manufactures the product but also develops the market.

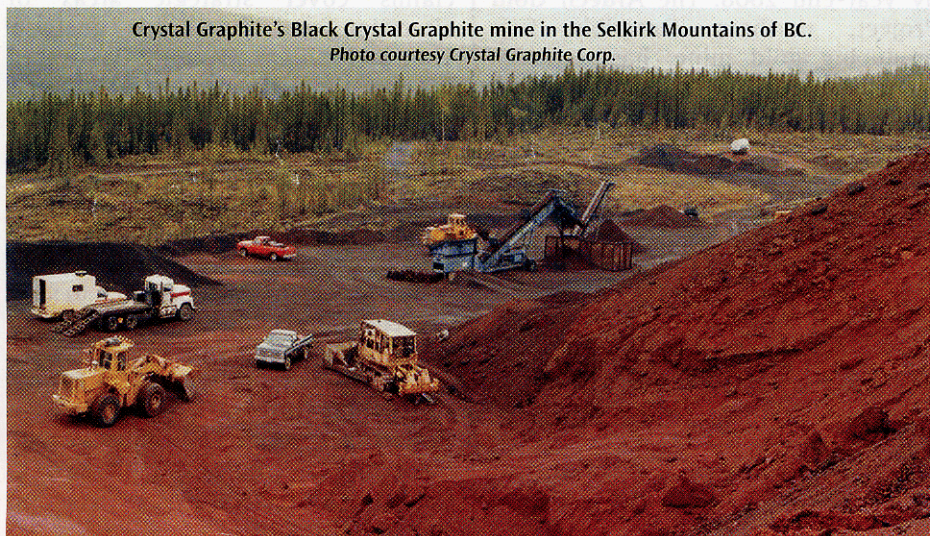
The largest and most well-known market continues to be landscaping and barbecue rocks; however, over the years uses for volcanic material aggregate have continued to expand. Its lightweight and low density make it ideal for concrete and other applications such as backfill where sand and gravel have been traditionally used. Its superior insulating and drainage properties have allowed CPC to successfully market "Tephralite™" for use in poor soil conditions and colder climates where traditional material may expand and contract causing roads and sidewalks to crack.

Another example of CGC's innovative development activities surrounding its industrial mineral portfolio is its application to the horticultural and agricultural industries in the form of Tephagro™ as replacement for traditional soil amendment. This product has been extensively tested in Holland, where similar aggregates have been used for years with excellent results. Other uses include winter road cover as an alternative to sand and salt, called Anti Slip™. It has also been used as a filtration medium in a recirculating irrigation system (Tephrafilter™). There are a number of other uses for the Nazko aggregate which are currently under development.

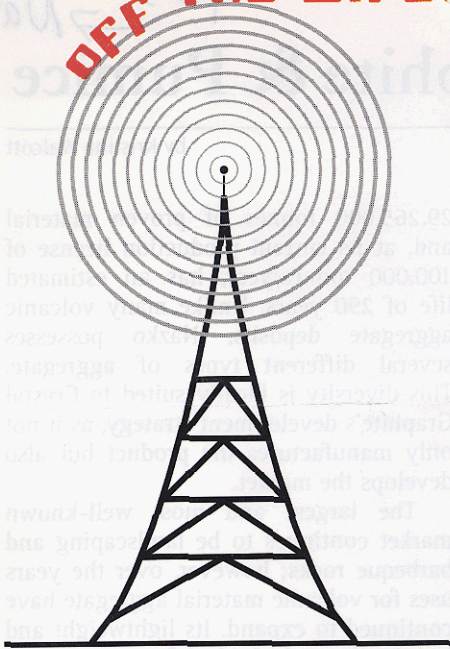
The key to successful development of an industrial mineral is, of course, reliable delivery; however, management unlike other exploration sectors must not only focus on exploring and developing the product, but must devote equal care and attention to the development of the end user market and/or securing markets to sell its product. Management at CGC/CPC appears to have not only sound technical projects, but has also been able to effectively identify select uses for its products in order to generate maximum value for its products. 🏠

Crystal Graphite's Black Crystal Graphite mine in the Selkirk Mountains of BC.

Photo courtesy Crystal Graphite Corp.



OFF the wire



Mindoro Resources Ltd. [MIO-TSXV; OLM-Frankfurt] and joint venture partner **Panoro Minerals Ltd.** [PML-TSXV] have received favourable results from Taganito Mining Corp.'s initial evaluation of the nickel laterite potential of the Agata project, part of the Surigao properties. Based on these results, Taganito has begun more detailed evaluations of Agata and will extend its reconnaissance investigations to other parts of the extensive Surigao properties.

On the Agata Project, Taganito collected surface rock samples ranging from 0.24% to 2.19% nickel, surface laterite samples ranging from 0.54% to 0.93% nickel and test pit laterite samples ranging from 0.8% to 2.21% nickel. Taganito is owned by Japanese nickel smelter and trading companies and has the right to explore for nickel on the Surigao properties.

Terry Lyons, chairman of Northgate Minerals, and Michael Jones, president of Platinum Group Metals, recent joined the Mindoro Advisory Board.

David Adamson, president, reports **Rubicon Minerals Corp.** [RMX-TSX] has received further encouraging drill results from the newly discovered Phoenix Zone at its 100% owned McFinley Gold property in the Red Lake Camp, northern Ontario. The gold discovery is located in a previ-

ously unexplored part of its four-km long property. Last April the company reported economically significant gold intercepts from this area. This latest phase of drilling, comprising 16 holes, was designed to test and expand these zones.

Highlights include 70.1 grams gold/tonne over 3.1 metres which contained widespread and abundant visible gold in hole PZ-23. Hole PZ-25 returned 15.8 grams/tonne over 3.5 metres with hole PZ-26 assaying 8.6 grams/tonne over 3.2 metres.

The recent drilling has intersected at least three separate sulphide-bearing mineralized structures. The PZ-1 Zone currently has a strike length of approximately 200 metres and a depth extent of 160 metres below surface. The higher grade core of the PZ-1 shoot, which has been drilled on approximate 30 metre centres, has an arithmetic average grade of 20.69 grams gold/tonne over 3.27 metres in seven drill holes. Gold zones discovered to date are within 150 metres of surface and remain untested at depth. Follow-up drilling to further expand and test the new discovery is underway.

Pele Mountain Resources Inc. [GEM-TSXV] recently farmed out two projects to **Goldcorp Inc.** [G-TSX; GG-NY]. Under the option terms, Goldcorp. can earn a 50% interest in the Arden Gold Project, located 110 km west of Thunder Bay, by spending \$3 million by year-end 2007 and may earn an additional 10% by spending an additional \$1.5 million by year-end 2008. The Arden Gold Project, northern Ontario's first producing gold mine, has a three-compartment main shaft sunk to the



Al Shefsky, President of Pele Mountain Resources, inspects channel sampling at the Festival property, recently optioned to Goldcorp Inc. Photo courtesy Pele Mountain Resources Inc.

1200-foot level. There are numerous gold targets.

Goldcorp. can also earn a 50% interest in the Festival Diamond Project, located 25 km north of Wawa, along the Trans Canada Highway, northern Ontario. To earn its interest, Goldcorp. must spend \$2 million by year-end 2006 and an additional 10% by spending an additional \$1 million by year-end 2007. Bulk sampling at the Festival Project has confirmed the presence of commercial size and gem quality diamonds while surface exposures suggests the potential for near-surface tonnage.

The current program is focusing on 10 of the occurrences where limited exploration has been performed as well as on other high potential targets. Following hand stripping, mapping and petrology, channel sampling will be carried out. Up to 2,000 kg of samples will be submitted for diamond extraction by caustic digestion followed by drilling.

Gold Canyon Resources Inc. [GCU-TSXV] is conducting its Summer 2004 drilling campaign and has expanded its 100% controlled land position on the Springpole Lake Gold Project in the Red Lake Mining District of northern Ontario. The 2,440-foot drill program is designed to expand upon encouraging results from the winter drilling program.

The newly acquired ground is located in the eastern portion of the Springpole Project in an area known as Sandy Point. These newly-staked claims cover strategic areas of alteration and favourable geology. That preliminary mapping has traced for over three km along strike.

By the end of August field crews had completed about 75% of the MMI geochemical sampling program and geological mapping of the Springpole property. Mapping identified several new target areas. A helicopter-borne geophysical survey is expected to start in September and will be completed in time to provide data for the winter 2004/2005 exploration program.

At Gold Canyon's Cordero Gallium Project in northern Nevada, advanced metallurgical studies are planned to improve the recovery and extraction rate of gallium. ●



...coming events

The **Prospectors and Developers Association of Canada** is presenting its **Annual Convention** at the Metro Toronto Convention Centre, Toronto, Ontario March 7-10, 2004. For more information call (416) 362-1969. Fax (416) 362-0101 or Email: imcdonald@pdac.ca. Website www.pdac.ca

ITE Group PLC and Russian Society for Non-Destructive Testing and Technical Diagnostics invites your company to participate in the **2nd International Exhibition and Conference** equipment and devices for non-destructive testing and technical diagnostics March 17-19, 2004 at the World Trade Center. Krasnopresnenskaya nab., 12, Mezhdunarodnaya hotel, "Ulitsa 1905 goda" metro station) Moscow, Russia. The exhibition is held by the European Federation for Non-destructive Testing, International Committee on Non-destructive Testing and Moscow Government. Tel. +7 3 806 002 Fax. +7 3 806 001 Email: ndt@primexpo.ru Website: www.primexpo.ru/ndt/eng

The second International Gravity Concentration Symposium, **Gravity Concentration 04**, will be held at the Sheraton Perth Hotel, Perth, Australia from

March 22-23, 2004 and is being sponsored by Falcon Concentrators, Gekko Systems, Roche Mining and the Minerals Gazette, published by Australia's Resource Information Unit. **The Comminution 04 Conference** will also be held at the Sheraton Perth, March 24-26. For more information: Tel. +44 1326 312236 Fax +44 1326 318352 Email: amanda@min-eng.com Website: www.min-eng.com/gravityconcentration04/

GLOBE 2004 will be held from March 31 to April 2, 2004 at the Vancouver Convention and Exhibition Centre. GLOBE is the world's largest environmental business summit, held biennially in Vancouver, British Columbia, Canada. Carlos Guimarraes, vice president of Dow Chemical Company's Environmental Operations Business and chair of the U.S. Business council for Sustainable Development, will be a key speaker at GLOBE 2004, featuring the world's prominent environmental business leaders. Visit www.globe2004.com or call George Affleck or Jeremy Dunn, Curve Communications Group, 604-684-3170 or fax 604-684-3171 Email: globe@curvecommunications.com

International Investment Conferences

presents the **Global Mining Forum 04** at the Hilton London Metropole May 4-5, 2004. The Global Mining Forum is a two-day professional investment conference. Sponsorship is by invitation and limited to international companies and investment professionals. Pre-registration is recommended for the best rate and guaranteed attendance. Call Toll Free from the U.S. and Canada at 1-800-282-7469 or (305) 669-1963. Fax: (305) 669-7350 Web Site: www.iiconf.com E-mail: iiconf.com

Exhibition Management Services is presenting four events July 6 - 9, 2004 at the International Conference Centre, Accra, Ghana, West Africa. They include **W.A.M. 2004** - the 6th Annual West African International Mining Exhibition and Conference; **Electric West Africa** - the 8th Annual International Exhibition for Electrics, Power Generation and Electronics; **C.I.D. 2004** - the West African Exhibition for Construction and Infrastructure; and **WAMPOC** - the 4th Annual West African Mining and Power Conference. For more information, contact Exhibition Management Services at: Tel. +27 11 783-7250 Fax +27 11 783 7269 E-mail: st@exhibitionsafrica.com Web site: www.exhibitionsafrica.com.

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CGC
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Graphites fundamental metallic properties make it ideal for use in electric motors, batteries and fuel cells.

Processing plant in the Slocan Valley, BC

CYTG-CNQ **CYTG-OTC BB**

- Targeting the high-tech energy market
- Positioned to supply products for bipolar plates for fuel cells and batteries
- One of only two North American graphite producers
- Low-risk/economical quarrying and processing methods
- Environmental, mining, reclamation, water and land use permits in place
- Regional type graphite deposit (81 sq kms of mineral claims) located in Slocan Valley, BC
- Owner/Operator of North America's only mine producing high-purity flake graphite, a mineral critical to the manufacture of fuel cells.

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Lake property from Phelps Dodge Corporation of Canada, Limited. Phelps Dodge intersected anomalous uranium mineralization in an alteration zone exhibiting many characteristics typical of deposits in the Basin. A drilling

Inc. [NCR-TSXV] signed a letter of intent to sell a 51% interest in the Russel Lake uranium property, located midway between McArthur River and Key Lake, to (still private) Roughrider Uranium Corp. Limited drilling in the

to Athabasca - Altius Minerals Corp. [ALS-TSXV] is involved in two exploration projects in Newfoundland and Labrador. Cameco is funding exploration at Rocky Brook, Newfoundland, to locate the source of a uranium boulder train. The latest phase was an 80-hole sonic drilling program to take samples of surficial till and bedrock. In partnership with another junior, Fronteer Development Inc. [FRG-TSX], Altius acquired six properties in the Central Mineral Belt of Labrador on which there are known uranium occurrences. The Michelin property contains an out-of-the-money uranium deposit that was abandoned in the 1970s; and samples taken on the property last year returned assay values for gold and silver. 

Altius Minerals and Fronteer Development are searching for uranium deposits in Newfoundland

program is underway on the Moore Lake uranium project optioned from JNR Resources Inc. [JNN-TSXV]. The 15-hole program is initially following up uranium mineralization intersected in the Maverick zone, in particular hole ML-25, which returned 0.62% U_3O_8 over 9.1 metres, including 4.8 metres of 1.2% U_3O_8 and 0.4 metres of 12% U_3O_8 within that interval. International Uranium also optioned the Lazy Edward Bay property from JNR and has exploration interests in the United States and Mongolia, and a 2,000 ton per day uranium mill in Utah currently being used to process uranium-bearing waste materials.

JNR Resources began staking claims in 1997 under the guidance of Dr. Les Beck, the author of many technical papers on uranium and a former Executive Director of the Geology & Mines Division of the Saskatchewan Ministry of Energy & Mines. The properties acquired by staking total in excess of 500,000 acres.

The most recent program on the UEX Corporation [UEX-TSX] Hidden Bay property, adjacent to the Rabbit Lake mine and mill, employed MMI geochemistry to try to locate the source of the Vixen Lake uranium boulder train. The next phase, planned for the winter 2004 field season, will consist of 50 km of gravity surveys, 65 km of electromagnetic surveys and 3,200 metres of drilling. Three MMI anomalies located "up-ice" from the boulder train are considered high priority targets. Drilling is also planned at Riou Lake. UEX was formed in 2002 when Cameco transferred Hidden Bay and Pioneer Metals, the grassroots properties that make up the Riou Lake project located on the northern margin of the Basin. Prior widely spaced drilling at Hidden Bay defined three low-grade deposits with potential to contain higher-grade pods.

Northern Continental Resources

Grayling zone intersected subeconomic mineralization, with best intercepts of 3.5% U_3O_8 over 0.4 metres and 0.12% over 2.2 metres. Over 200 basement EM targets remain to be tested.

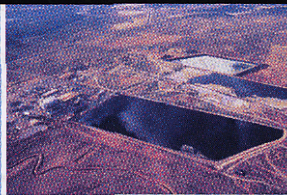
Exploration is not entirely limited

International Uranium Corporation

KEY ASSETS

- White Mesa Mill – a 2,000 ton per day permitted uranium / vanadium processing plant in Utah.
- Arizona Strip uranium properties in north-central Arizona.
- Colorado Plateau uranium properties straddling the Colorado and Utah border.
- Bullfrog uranium property in south-central Utah.
- Uranium development / exploration properties in Mongolia.
- Various uranium-bearing waste processing contracts.
- Uranium exploration in the Athabasca Basin of northern Saskatchewan – the richest uranium region in the world.
- Moore Lake – high grade uranium discovery – on going exploration

Top uranium industry experts have joined the IUC advisory committee: Dr. Klaus Lehnert-Thiel, P.Eng., P.Geo.; Ron Netolitzky, B.Sc., M.Sc.; Mr. Richard Bailes, B.Sc., M.Sc. – mandate is to assist and advise IUC on its various exploration programs underway in the Athabasca Basin and on the acquisition of prospective uranium exploration properties with a focus primarily in Canada, as well as to advise on the development of the Company's existing large uranium resources in Mongolia and the U.S.



Lundin Group Company

22.5 million pounds global U3O8 resources in the U.S.
23 million pounds global U3O8 resources in Mongolia
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79 million shares fully diluted
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US \$12 million cash posted as bonds against future decommissioning and reclaiming of mill and mine sites.

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