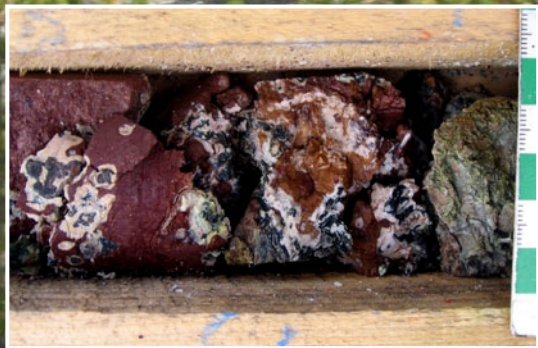




Saskatchewan  
Ministry of  
Energy and  
Resources



# Saskatchewan Exploration and Development Highlights 2008



Compiled by Staff of the  
Saskatchewan Ministry of  
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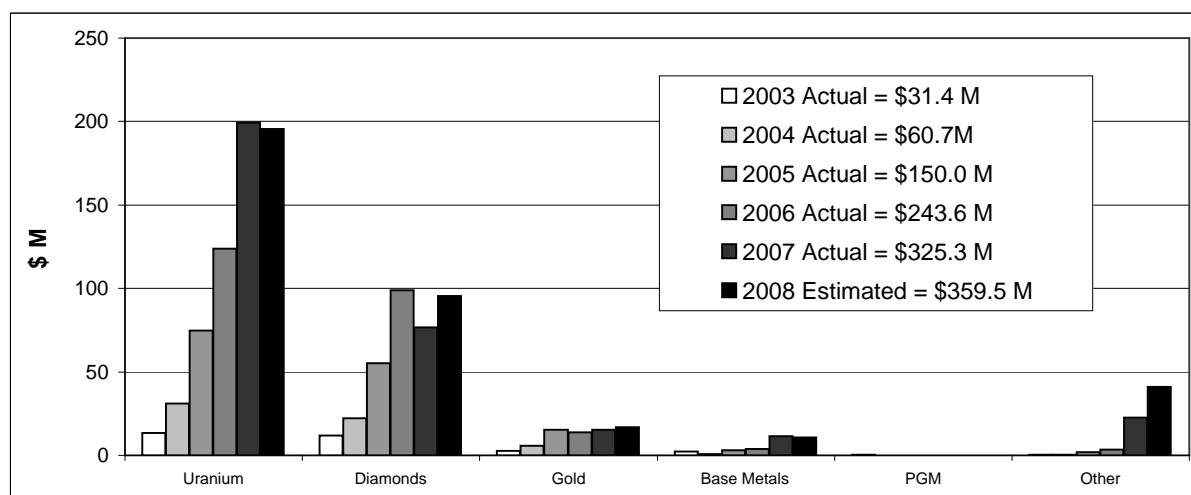
# Saskatchewan Exploration and Development Highlights 2008

Compiled by Staff of the Saskatchewan Ministry of Energy and Resources  
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## 1. EXECUTIVE SUMMARY

In 2007, Saskatchewan continued to have unprecedented growth in mineral exploration and development. The combined value of sales from Saskatchewan mineral production in fiscal 2007-08 was over \$4.5 billion (B). Saskatchewan continues to be the global leader in uranium and potash production, contributing 33% of the world's supply of potash and 23% of the world's primary production of uranium. Other minerals mined included gold, sodium sulphate, kaolinite, coal, aggregate, bentonite, and silica sand. In addition, diamonds, base metals, and rare earth elements were the focus of substantial exploration activity.

Although the global market adjustment has caused commodity prices to drop in 2008, exploration activity throughout the province continued to be strong. The strength of Saskatchewan's mining industry is due to its rich and diverse mineral endowment which reflects the geologic diversity of the province. Saskatchewan's geology spans much of the Earth's history and represents an array of tectonic environments, many of which have the potential to host specific metallic and/or non-metallic mineral deposits. Mineral exploration expenditures are forecasted to top \$359.5 million (M), setting a new all-time record in terms of current year dollars, and continuing a consecutive year-over-year increase from 2001 (\$22.1 M) to present (Figure 1).



	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008e
Uranium	14.0	17.7	14.0	15.4	13.3	31.2	74.6	123.7	199.2	195.4
Diamonds	1.4	4.1	4.8	6.1	12.0	22.4	55.4	98.8	76.6	95.5
Gold	1.0	0.7	1.0	2.5	2.9	5.7	15.3	13.8	15.3	16.9
Base Metals	5.6	4.5	1.4	1.9	2.2	0.9	2.9	3.9	11.5	10.8
<sup>1</sup> PGE	0.9	1.0	0.1	0.6	0.5	0.0	0.0	0.0	0.0	0.0
<sup>2</sup> Other	0.8	0.1	0.8	1.3	0.5	0.5	1.8	3.4	22.7	40.9
<b>Total</b>	<b>23.7</b>	<b>28.1</b>	<b>22.1</b>	<b>27.8</b>	<b>31.4</b>	<b>60.7</b>	<b>150.0</b>	<b>243.6</b>	<b>325.3</b>	<b>359.5</b>

<sup>1</sup> Platinum group minerals.

<sup>2</sup> Industrial minerals, including REE, potash, and clays.

**Figure 1 - Mineral exploration expenditures in Saskatchewan. Data in the histogram compare actual expenditures for 2003 to 2007 and estimates (e) for 2008, which are compiled from the annual survey of exploration expenditures by the Saskatchewan Geological Survey. Tabulated data from 1999 to 2007 are actual values reported in the same survey. All values in millions of Canadian dollars (\$ M).**

**Front Cover:** A drill rig on Hathor Exploration Limited's (Hathor) Midwest NorthEast property in the northeast part of the Athabasca Basin. The rig is drilling an angle hole into the Roughrider Zone, which is located beneath McMahon Lake close to the Midwest and Midwest A deposits. Hathor has encountered thick, high-grade uranium intersections in the Roughrider Zone. The inset picture shows 'worm rock' with pitchblende coring reduced (white) areas of the rock. The rest of the rock is strongly hematized. Used with permission of Hathor; photos taken by staff of the Saskatchewan Ministry of Energy and Resources.

Mineral dispositions were slightly down from last year's record rates. As of September 30th, 2008, there were 7,257 active mineral dispositions issued totalling 11 565 872 ha as well as pending applications for a further 11 dispositions, covering 11 401 ha. In addition, there were 203 active potash dispositions covering 4 373 000 ha with a further 14 applications for 224 246 ha pending. A significant new coal discovery in the Hudson Bay area, incited a staking rush for coal and, as of September 30th, 2008, there were 1,541 active coal dispositions totalling 663 418 ha, with an additional 7,075 applications pending covering another 5 397 697 ha.

Uranium was produced from three mines in 2007: the McArthur River Mine, Eagle Point Mine at Rabbit Lake, and the McClean Lake Mine. Total production was 24.6 M lb. U<sub>3</sub>O<sub>8</sub>; 18.7 M lb. of which was produced from the McArthur River Mine. The spot market price of uranium fell steadily from US\$90/lb. U<sub>3</sub>O<sub>8</sub> in January to US\$46/lb. U<sub>3</sub>O<sub>8</sub> by October 14, 2008 (Source: The Ux Consulting Company, LLC; URL<<http://www.uxc.com>>). The January long-term price of US\$90/lb. U<sub>3</sub>O<sub>8</sub> also fell to US\$70/lb. U<sub>3</sub>O<sub>8</sub> as of the end of September 2008. Although the price of uranium has come down substantially, the concerns about potential supply shortages, heightened by recent production shortfalls at mining operations around the world, will likely ensure that the price of uranium will stabilize or begin to rise again. In the Athabasca Basin, the world's premier exploration district for high-grade uranium deposits, it is estimated that about \$195.4 M will be spent on exploration in 2008, down slightly from actual expenditures in 2007 of nearly \$200 M. Some of the largest programs include those of producers Cameco Corporation (Cameco), AREVA Resources Canada Inc. (AREVA), and Denison Mines Corp. (Denison) as well as junior UEX Corporation (UEX). Exploration successes continue to be reported, underlining the continued potential of the basin. The most significant success, announced in early 2008, was junior Hathor Exploration Ltd.'s (Hathor) discovery of the Roughrider Zone at its Midwest NorthEast project.

Claude Resources' (Claude) Seabee Mining Operation currently remains the only gold producer in the province, with total production of 44,323 oz. for 2007 and 19,953 oz. for the first half of 2008. In terms of total expenditures, gold exploration activity in 2008 (\$16.9 M proposed) is expected to be on pace with 2007 levels (\$15.3 M actual). This exploration has almost exclusively been focused on three areas of the Precambrian Shield, the Glennie Domain, the La Ronge Gold Belt, and the Goldfields area on the northern shore of Lake Athabasca. In the Glennie Domain, Claude continues to focus its exploration activity on the Seabee area, including underground exploration at Seabee itself and surface drilling and resource definition of the satellite Santoy 8/8E deposit. GLR Resources (GLR) continues to work towards production at the Box and Athona deposits in the Goldfields area, having undertaken further drilling and Reserve/Resource estimation in the past year. In the La Ronge Gold Belt, Golden Band Resources (Golden Band) advanced exploration at several of its Waddy Lake projects as well as the Bingo deposit. This work added to the company's resource inventory and helped it advance towards its goal of production by late 2009.

There was no base metal production in Saskatchewan in 2007. Despite slightly weakening base metal prices during 2008, mineral exploration expenditures for base metals are expected to maintain last year's level of around \$10 M. Most of the associated exploration activity is targeting volcanogenic massive sulphide deposits in the Flin Flon Domain (including its sub-Phanerozoic portion), sediment-hosted sulphide occurrences in the Wollaston and Kisseynew domains, and intrusion-hosted Ni-Cu-platinum group element occurrences near the historic Rottenstone mine.

West of Flin Flon, Foran Mining Corporation and Copper Reef Mines Ltd. are continuing to advance the McIlvenna Bay volcanogenic massive sulphide project. Exploration Syndicate, Inc. has made a significant Cu-Zn discovery on its McKenzie Lake project in the Suggi Lake area, where two of seven identified geophysical targets have been drilled leading to identification of volcanogenic massive sulphide mineralization within a predominantly felsic volcanic succession. Murgor Resources released a NI 43-101-compliant Mineral Resource Estimate for its Fon deposit in February 2007, outlining a revised Inferred Resource for the deposit. Mantis Mineral Corp. completed a geophysical survey on its Rottenstone-Ni-PGE project, on which it has a right to acquire a 60% interest from UraVan Minerals Inc., and identified several drill targets for winter of 2008. Manicouagan Minerals Inc. continued their drilling and geophysical program on the polymetallic Brabant Lake deposit in the southwestern Kisseynew Domain, and filed a 43-101-compliant technical report, which includes an updated Resource Estimate. In the Wollaston Domain, Wildcat Exploration Ltd. continued exploration on its Foster River Pb-Zn-Ag property and Golden Arch Resources completed six diamond drill holes, all intersecting sulphide mineralization, on its Wakefield Lake zinc deposit.

Great Western Minerals Group Ltd. (GWMG) has continued evaluation and development of its Hoidas Lake rare earth element deposit with a 2008 winter drilling program that totalled 6836 m in 32 holes. The JAK Zone was extended by 250 m in length and 150 m in depth, and remains open in both directions. The drilling also revealed a new zone in the footwall of the JAK Zone. GWMG strengthened its "mine to market" strategy with the announcement of the complete acquisition of Less Common Metals Ltd., a company that produces a variety of special alloys for use in the automotive, battery, magnet, and aerospace industries.

Diamond exploration expenditures are forecast to be over \$95 M in 2008, up from the actual expenditures of \$76.6 M in 2007. The bulk of the 2008 expenditures will be at Shore Gold Inc.'s (Shore) Star Diamond Project and the Fort à la Corne Joint Venture's (FalC JV) Orion Cluster Project. Shore produced a NI 43-101-compliant Mineral Resource Estimate for the Star Kimberlite (Star), which outlined an Indicated Resource of 122.7 million tonnes (M t), at a grade of 13.5 carats per hundred tonnes (cpht), and an Inferred Resource of 30.3 M t at a grade of 13.1 cpht. With the bulk of the sampling completed, Shore has shifted focus to desktop engineering and environmental studies as it progresses the project through to the bankable feasibility stage. The FalC JV is a partnership between Kensington Resources Ltd., a wholly owned subsidiary of Shore (60%), and Newmont Mining Corporation of Canada Ltd. (40%). The FalC JV is undertaking an accelerated exploration and evaluation program of its Orion kimberlite cluster. The goal of the program is to recover enough diamonds to determine representative grade and diamond values for the various geologic phases. The FalC JV has also begun exploring its newly defined Taurus kimberlite cluster, which it believes has potential for tremendous volumes of diamond-bearing kimberlite. Vaaldiam Resources Ltd. (Vaaldiam) who acquired the Saskatchewan assets of Great Western Diamonds Corp. (GWD) is continuing to evaluate the Candle Lake kimberlites. Some other grassroots diamond exploration was also underway in Saskatchewan.

In 2007, Saskatchewan's potash industry set records for the amount of potash produced (16.95 M t KCl), and the total value of potash sales (\$3.1 billion (B)). After 25 years of potash exploration inactivity, Saskatchewan is now in the midst of a potash exploration boom. In 2004, only 206 306 ha of land were under disposition for potash, but as of September 30, 2008, over 4.3 M ha of land are now under disposition for potash exploration and development. Aside from the three current producers, there are now over a dozen different companies involved in potash exploration in Saskatchewan. From 2007 to 2008, seismic programs totalling over 20 000 line-km have been applied for over potash dispositions, and over 50 potash test well licenses have been granted to various exploration companies. It is estimated that over \$35 M will be spent exploring for potash in Saskatchewan in 2008. All ten of Saskatchewan's producing potash mines have announced upgrades or expansions to increase annual capacities. Saskatchewan's potash mining companies are planning to invest a cumulative \$8.4 B to increase production capacities by 74% over the next 12 years.

Sherritt International Corporation reported that coal production from its three mines in the province totalled 10.3 M t in 2007. In April of 2008, Goldsource Mines Inc. (Goldsource) reported discovering coal while drilling for kimberlite on its Border property claim block north of Hudson Bay, in east-central Saskatchewan. The discovery of an unusually thick coal seam touched off a staking rush in the Hudson Bay area, that quickly extended westward across the province. Since the initial discovery, the Ministry of Energy and Resources Mines Branch has received over 7,000 applications for coal permits, which cover approximately 5.4 M ha.

In August, 2008 Whitemud Resources Inc. (Whitemud), held a grand opening for its newly constructed meta-kaolin plant and quarry at its Gollier Creek kaolin deposit, near Wood Mountain. The company produces meta-kaolin, a cement substitute used in concrete, which has been shown to have greater strength, durability and resistance to chemical attacks than concrete made with traditional cements. The plant has the capacity to produce 175 000 t of meta-kaolin annually, with room for expansions. The company now has Proven Reserves of 52.9 M t of ore, as well as Measured and Indicated Resources of 131.1 and 28.2 M t, respectively. Whitemud conservatively estimates a mine life of approximately 25 years.

## 2. INTRODUCTION

This paper is a review of current activity only. Geology, and Mineral and Petroleum Resources of Saskatchewan (Saskatchewan Geological Survey, 2003) provides a comprehensive summary of the economic geology of the province, including historical reserve and production data. For up-to-date information on all Saskatchewan mineral occurrences, refer to the Saskatchewan Geological Atlas (Slimmon, 2008) and the Saskatchewan Mineral Deposits Index (Bennett, 2006). Versions of both are available at the Saskatchewan Energy and Resources website (<http://www.er.gov.sk.ca>).

Current exploration expenditure forecasts are compiled from the annual survey of exploration expenditures compiled by the Northern Geological Survey Branch, Saskatchewan Ministry of Energy and Resources. Actual annual expenditures for previous years are from the same survey. Grade, tonnage, reserve, and resource data reported herein are from a variety of public sources, including published reports, public records, corporate websites, and Saskatchewan Mining Association Facts Sheets. These data may not necessarily conform to current CIM standards and NI 43-101 of the Canadian Securities Commission. The Ministry of Energy and Resources and the Government of Saskatchewan do not accept liability for any errors, omissions or inaccuracies that may be included in, or derived from, this report.

This document is an attempt to capture relevant information current as of October 15, 2008. Due to the current rapid pace of exploration for uranium, potash, diamonds, and gold, it is inevitable that significant new developments have occurred since printing.

Tables 1, 2, and 3 contain data on the current mineable reserves and geologic resources for the major uranium, gold, and base metal deposits in the province, respectively. The back page is a colour map with the locations of all of the major deposits discussed herein. The map also shows the outline of the tectonic provinces and lithostructural domains of the Precambrian Shield in northern Saskatchewan.

### 3. THE ENERGY AND MINERALS SECTOR

Energy and mineral resources are a cornerstone of the provincial economy. Non-renewable resources, including petroleum, coal, and metallic and industrial minerals, are the most important primary industrial sector. They accounted for 14.9% of the provincial Gross Domestic Product (GDP) in 2007 compared to 10.3% for agriculture and forestry (Figure 2).

Saskatchewan is the second-ranking Canadian jurisdiction in oil production and the third-ranking in both gas and coal production. Combined oil and gas sales were over \$9.7 B in fiscal year 2007-08, providing approximately \$1.8 B in total government revenue. In 2008, the price of oil reached all time highs and despite price declines later in the year, sales revenue and associated government revenue is expected to far exceed 2007 levels.

In 2007, the oil industry drilled 2,295 wells and invested \$2.9 B in the province. The gas industry was also very active in 2007, drilling 1,156 wells and investing \$237 M in exploration and development.

A preliminary estimate by Natural Resources Canada ranks Saskatchewan second amongst the provinces in 2007 for value of sales for non-fuel minerals. In fiscal year 2007-08, industrial and metallic mineral sales were valued at \$4.5 B and generated over \$500 M in direct Crown revenues. It is expected that sales values and associated government revenue in 2008 will be significantly higher, due to strong potash and uranium prices.

Metallic mineral production in 2007 included uranium and gold, while industrial mineral production included potash, aggregate, silica sand, salt and sodium sulphate, and minor bentonite and structural clay. Figure 3 shows the value of sales of the province's non-renewable resources in fiscal year 2007-08.

The mines of the Athabasca Basin in northern Saskatchewan, and the Prairie Evaporite in central Saskatchewan, continue to be the world's most important suppliers of uranium and potash, respectively. In 2007, Saskatchewan produced 100% of Canada's uranium from three operations, and accounted for approximately 23% of world output. Saskatchewan produced 95% of Canada's potash from ten facilities, and accounted for about 33% of world production.

The province will continue to be a world leader in these industries. Potash prices have reached all-time highs and future demand is expected to remain strong. The Saskatchewan potash industry has responded to this by announcing \$8.4 B in expansions which will increase production capacity of the industry by 74% by 2020. Nuclear power continues its resurgence with many countries planning to increase nuclear capacity. In 2007, uranium exploration was again at an all-time high and several deposits have shown potential for future development.

Saskatchewan's energy and minerals sectors will continue to make a significant contribution to the Saskatchewan economy. With higher prices in the petroleum, potash and uranium sectors, non-renewable resources should contribute a higher portion of Saskatchewan's GDP in 2008.

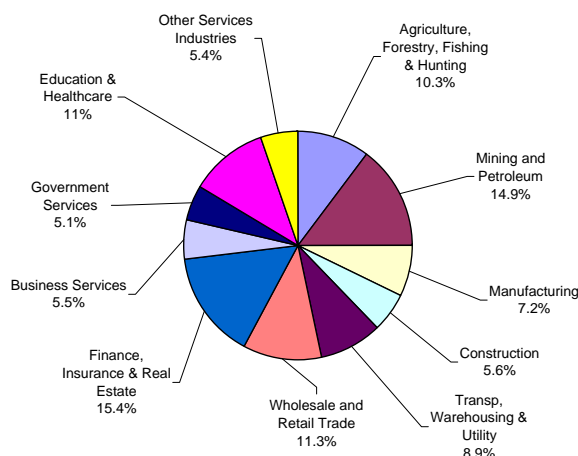


Figure 2 - 2007 percentage of GDP by sector (\$37.7B, CANSIM Tale 379-0025, 39.5 B, Statistics Canada).

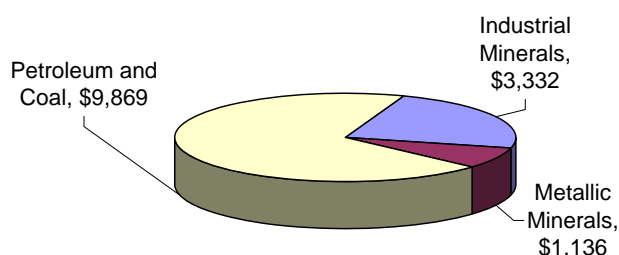


Figure 3 - 2007 value of non-renewable resources (in \$ M, Saskatchewan Energy and Resources).

## 4. URANIUM

### PRODUCTION OVERVIEW

Uranium mining continued at three operations in 2007-08: the Eagle Point Mine at Rabbit Lake, the McArthur River Mine, and the McClean Lake Mine. Ore from the Eagle Point Mine was processed at the Rabbit Lake Mill and that from McArthur River at the Key Lake Mill. Stockpiled Sue A and Sue E ore, and newly mined Sue B ore from the McClean Lake project was processed in the JEB Mill at McClean Lake. Construction at Cigar Lake was further delayed due to another water incursion in August 2008. Remediation was halted pending results of regulatory meetings, and further engineering studies. Estimated times of production have not been released, but will likely be beyond the most recently published date of 2011.

Global uranium industry leaders Cameco and AREVA operate all of the aforementioned mines and processing facilities and control most of the identified resources in the Athabasca Basin. Cameco is active in all stages of the nuclear power cycle, from mining to power production. In addition to mining, Cameco refines uranium at Blind River, Ontario, and has a conversion facility at Port Hope, Ontario that produces  $UO_2$  for CANDU reactors and  $UF_6$  for other reactor systems. Furthermore, through its subsidiary Zircatec, Cameco produces fuel bundles for CANDU reactors. Cameco is also active in the power industry, with a 31.6% interest in the Bruce Power Limited Partnership. French energy giant AREVA is also active in all these areas, although many of their operations are overseas. In addition, the company reprocesses and recycles spent fuel.

Production, reserve, and resource numbers are summarized in Table 1. In 2007, the McArthur River Mine remained the world's largest producer, yielding its licensed capacity of 18.7 M lb.  $U_3O_8$ . Total Saskatchewan uranium production for 2007 was 24.6 M lb.  $U_3O_8$ , down from the 25.6 M lb.  $U_3O_8$  produced in 2006. This decline reflects a substantial decrease in production at the Rabbit Lake operation. It is estimated that Saskatchewan will produce 24.4 M lb.  $U_3O_8$ , in 2008.

The spot price for uranium fell steadily through 2008 with a minor rebound late in the summer (Figure 4). The uranium spot price closed in January at US\$90/lb.  $U_3O_8$  but by October 14, 2008 was at US\$46/lb.  $U_3O_8$ . The January long-term price of US\$90/lb.  $U_3O_8$  also fell to US\$70/lb.  $U_3O_8$  as of the end of September 2008 (Source: The Ux Consulting Company, LLC; URL<<http://www.uxc.com>>). Despite this regression, concerns about pending supply shortages persist.

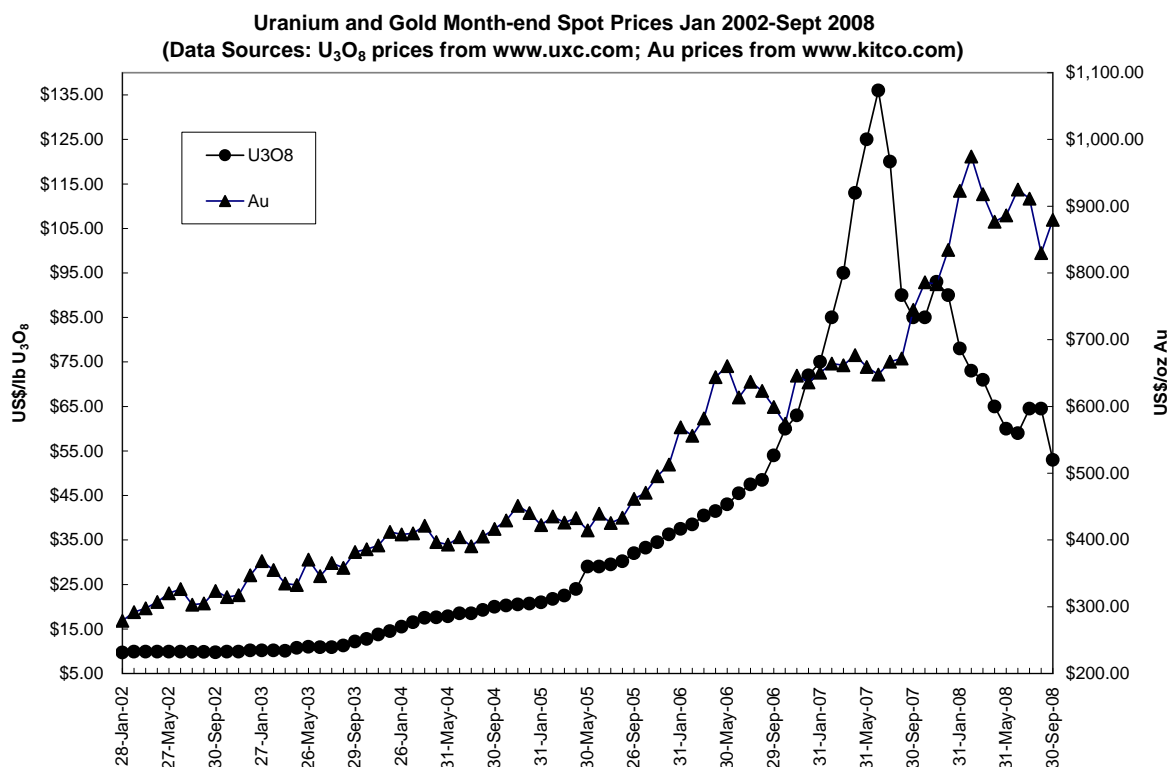


Figure 4 - Month-end spot uranium and gold price, January 2002 to September 2008.

**Table 1 - Published production, reserves, and resources for uranium deposits in Saskatchewan at the end of 2007.**

Owner(s)*	Property/Deposit	Reserves (M lb. U <sub>3</sub> O <sub>8</sub> )	Grade %U <sub>3</sub> O <sub>8</sub>	Production (M lb. U <sub>3</sub> O <sub>8</sub> ) ***	
				2007	2008
<b>Reserves**</b>					
Cameco Corporation	Rabbit Lake; Eagle Point Mine	16.2	1.14	4.0	3.6
Cameco Corporation – AREVA Resources Canada Inc.	Key Lake	0.7	0.52		
Cameco Corporation – AREVA Resources Canada Inc.	McArthur River P2N	349.1	20.66	18.7‡	17.56‡
Cameco Corporation – AREVA Resources Canada Inc. – Idemitsu – TEPCO	Cigar Lake	226.3	20.67	–	–
AREVA Resources Canada Inc. – Denison – OURD	McClellan Lake, <i>stockpiled and in situ</i> (Sue A, B, E)	8.70†	0.87†	1.9	3.2
AREVA Resources Canada Inc. – Denison – OURD	Midwest	36.7†	2.6†	–	–
<b>Resources**</b>					
		Measured and Indicated	Grade %U <sub>3</sub> O <sub>8</sub>	Inferred	Grade %U <sub>3</sub> O <sub>8</sub>
Cameco Corporation	Rabbit Lake; Eagle Point Mine	8.3	0.81	6.1	0.9
Cameco Corporation – AREVA Resources Canada Inc. – JCU	Dawn Lake	12.9	1.69	–	–
Cameco Corporation – AREVA Resources Canada Inc.	McArthur River P2N	21.5	8.49	94.8	7.35
UEM (Cameco Corporation – AREVA Resources Canada Inc.) – JCU	Millennium	46.8	4.53	9.7	2.06
AREVA Resources Canada Inc. – Denison – OURD	McClellan Lake (Caribou, McClellan North, Sue D, E)	23.41†	1.22†	–	–
AREVA Resources Canada Inc. – Denison – OURD	Midwest (Midwest A)	10.1†	0.97†	–	–
Cigar Lake Mining Corp. (Cameco Corporation – AREVA Resources Canada Inc. – Idemitsu – TEPCO)	Cigar Lake	6.6	4.86	118.2	16.92
UEX	West Bear	1.614	1.004	–	–
UEX	Horseshoe	18.693	0.237	1.426	0.208

**Notes:**

\* Operator first.

\*\* Data in this table do not necessarily conform to the current legal definition of reserves and resources by CIM. Reserves are proven and probable. Reserve and resource data are from company releases, Cameco Corporation Annual Financial Review, and UEX Annual Report unless otherwise specified. Data for different deposits are not necessarily comparable.

\*\*\* 2007 and 2008 production figures and estimates are from company releases, Cameco Corporation Annual Financial Review, and AREVA Resources Canada Inc. Annual Review.

† Reserve and resource numbers provided by AREVA Resources Canada Inc.

‡ Combined production from Key Lake and McArthur River ore.

## MAJOR DEPOSITS – PRODUCING MINES

### McArthur River Mine/Key Lake Mill

*McArthur River Mine: Cameco Corporation, operator (69.805%) and AREVA Resources Canada Inc. (30.195%).*

*Key Lake Mill: Cameco Corporation, operator (83.333%) and AREVA Resources Canada Inc. (16.667%).*

Economic uranium mineralization was first encountered by Cameco at McArthur River in 1988, and mining began in December 1999. The first shipment of primary ore slurry was processed at Key Lake in January 2000. In 2007, production at McArthur River/Key Lake was 18.7 M lb.  $U_3O_8$ , the licensed capacity of the Key Lake Mill. Production is expected to be down slightly to 17.56 M lb. in 2008 due to upgrades at the Key Lake Mill. Cameco has applied for an increase in annual licensed capacity at Key Lake to 22 M lb.  $U_3O_8$ .

McArthur River is the largest high-grade uranium deposit in the world, with Proven and Probable Reserves of 349.1 M lb.  $U_3O_8$  and an average grade of 20.66%  $U_3O_8$ . Grades within the orebody reach 70%  $U_3O_8$  locally, and composite grades of 30%  $U_3O_8$  over several metres are common. Uranium ore is structurally controlled by the P2N reverse fault, which dips 45° to 60° to the southeast and has a 70 m average vertical offset of the Athabasca Group unconformity. Ore is hosted within Athabasca Group sandstone and basement pelitic gneiss of the Wollaston Supergroup.

Non-entry raise-bore mining (Figure 5) is the sole method being used at McArthur River. Line-of-sight remote-controlled equipment is used to minimize worker exposure to radiation. High-grade ore is comminuted in a grinding system on the 640 m level, pumped to surface as mud-like slurry, and stored in tanks until being loaded into specially designed containers for the 80 km truck haul to Key Lake.

Before processing, the primary-ore slurry is blended with stockpiled, low-grade mineralized waste from Key Lake, and dry-hauled, low-grade ore (0.03 to 2.0%  $U_3O_8$ ) from McArthur. An average head grade of about 4%  $U_3O_8$  is sought to control radiation exposures in the mill and to maximize mill recovery rates. The old Deilmann Pit of the Key Lake Mine is used for tailings disposal.

### Eagle Point Mine, Rabbit Lake

*Cameco Corporation, operator (100%)*

The Rabbit Lake Deposit was discovered in 1968 and in 1975 became the first deposit to be put into production in the rapidly emerging Athabasca Uranium District. It was exhausted in 1984. After mining of a number of other deposits on the property, underground operations at the Eagle Point Mine commenced in 1991 and continued until 1999, when all mining activity at Rabbit Lake was suspended. Processing of stockpiled ore continued until its depletion in 2001. After a one-year care-and-maintenance program, the Eagle Point Mine reopened in 2002. Production in 2007, its fifth full year since reopening, was 4.0 M lb.  $U_3O_8$ , down from 5.1 M lb.  $U_3O_8$  in 2006. Part of this reduced production was the result of a water inflow event in late 2007, which temporarily reduced production. The inflow occurred during an upgrade to the mine's surface water handling capacity. The source of the inflow was an old exploration drill hole which was located and sealed in early 2008. Expected production in 2008 is 3.6 M lb.  $U_3O_8$ . The Rabbit Lake facility is now the longest running uranium mining-milling operation in Saskatchewan. Reserves as of December 31, 2007 were 16.2 M lb.  $U_3O_8$  at 1.14%. Eagle Point ore is targeted to feed the mill facility until the start up of the Cigar Lake Mine.



*Figure 5 - Drilling a raise-bore pilot hole at McArthur River Mine. Photo courtesy of Cameco Corporation.*

## **McClellan Lake**

*AREVA Resources Canada Inc., operator (70%); Denison Mines Corp. (22.5%); and OURD (Canada) Co. Ltd. (7.5%).*

The McClellan Lake property hosts a number of relatively shallow uranium deposits that were discovered beginning in 1979. Construction of the McClellan Lake complex was completed between 1995 and 1998, with production of yellowcake from the JEB deposit beginning in 1999. Milling of stockpiled Sue C ore was completed in 2005. The Sue A orebody was open-pit mined beginning in 2005, and was mined out by the end of 2006. Mining of the Sue E orebody, just to the south of the Sue C pit was completed in the first quarter of 2008. Mining is currently ongoing on the Sue B orebody. Feed for the JEB mill during 2008 was from stockpiled Sue A and Sue E ore and newly mined Sue B ore. Total production in 2007 was 1.9 M lb.  $U_3O_8$ . As of December 2007 reserves, including stockpiled Sue A ore and Sue E ore, were 8.70 M lb.  $U_3O_8$  with an average grade of 0.87%  $U_3O_8$ . Resource estimates for a variety of small deposits on the McClellan site are 23.41 M lb.  $U_3O_8$  at 1.22%  $U_3O_8$ . Expansion of the JEB mill began in the second quarter of 2005 and commissioning is nearly complete. In order to process Cigar Lake ore, a capacity increase from 8 M lb/year  $U_3O_8$  to the currently licensed 12 M lb/year  $U_3O_8$  was required.

A number of undeveloped deposits on the McClellan Lake property are becoming economic. An environmental assessment is underway for an open-pit mine at Caribou Lake, where a small, high-grade uranium deposit has been delimited 100 to 130 m below surface. Testing the use of borehole mining technology continues on the McClellan North deposit.

## **MAJOR DEPOSITS – DEVELOPING MINES**

### **Cigar Lake**

*Cameco Corporation, operator (50.025%); AREVA Resources Canada Inc. (37.100%); Idemitsu Uranium Exploration Canada (7.875%); and TEPCO Resources Inc. (5.0%).*

Cigar Lake was discovered in 1981 by COGEMA Canada Ltd. and the deposit was further delineated by a 170-hole diamond-drill program in 1985. Construction at Cigar Lake began on January 1, 2005 and was expected to take 27 months. In early April 2006, water inflow from a drill hole flooded the second shaft, which is used for underground ventilation. This setback was expected to delay mine start up by six months, and add an additional \$70 M to the start-up capital cost. A second influx of water in late October 2006, this time into the production area, could not be contained and flooded all of the mine's underground workings. In late December 2006, Cameco announced remediation plans for the mine. Phase 1 of remediation involved drilling holes into the area of the inflow into which they would pump concrete to seal it. Subsequent phases were to include dewatering of the mine, ground freezing of the inflow area, restoration of the underground workings, and, finally, resuming the push towards production. Flood remediation costs were expected to be over \$90 M. As of early September 2007, all of the holes for pouring concrete and dewatering the mine were completed. By December 2007 approximately 2000 m<sup>3</sup> of concrete had been poured in the vicinity of the inflow and testing of the plug began in February 2008 by drawing down the water level and measuring the rate of inflow in the No. 1 shaft. Regulatory approval was obtained to begin pumping water out of the mine in June 2008, but in August another water inflow was discovered. Pumping of the water was temporarily suspended and the water allowed to rise to about 100 m below surface after being pumped down to 430 m prior to the inflow. The capacity increase at the JEB mill to 12 M lb.  $U_3O_8$  was approved and is awaiting ore from Cigar Lake. Currently, the target for production is 2011 at the earliest.

Cigar Lake is the world's second-largest high-grade uranium deposit with total Proven and Probable Reserves of 226.3 M lb.  $U_3O_8$  at an average grade of 20.67%  $U_3O_8$ . Total Measured and Indicated Resources are 6.6 M lb.  $U_3O_8$  grading 4.86% and Inferred Resources are 118.2 M lb.  $U_3O_8$  at an average grade of 16.92%  $U_3O_8$ . Unlike McArthur River, the Cigar Lake deposit occurs exclusively above the Athabasca unconformity and is hosted by conglomerate and sandstone of the Manitou Falls Formation. The deposit is above a topographic rise in the basement surface, which coincides with a structurally controlled basement mylonite zone composed of augen-textured graphite- and sulphide-bearing sillimanite-cordierite-garnet pelitic gneiss of the Wollaston Supergroup. The main ore body is a massive pod about 2150 m in length, situated along the unconformity about 430 m below surface. The high-grade eastern part of the orebody is up to 100 m wide and 20 m thick. There is intense proximal clay alteration and silica bleaching, and an extensive, regional clay-alteration envelope.

Mining at Cigar Lake will be performed in two phases. Phase I will extract the high-grade eastern part of the orebody and will last for 15 years. After a three-year phase in, the optimal annual production is targeted at 18 M lb.  $U_3O_8$ . Phase II will extract the remaining, lower-grade part of the orebody. It will last for approximately 25 years, with targeted annual production lowered to 6 M lb.  $U_3O_8$ .

Access to the underground workings is by the No. 1 shaft. A second shaft provides alternative access and will be the exhaust outlet for the primary ventilation system. Phase II mining will require a third shaft. Drifts will be developed on two levels in basement rock beneath the orebody. The ore will be frozen and mined in panels from the upper

production level using a jet-boring, non-entry method. The ore will be slurried and pumped to the surface through pipes installed in the secondary containment unit within the No. 2 shaft.

The primary ore slurry from Cigar Lake will be transported to AREVA's JEB Mill at McClean Lake for processing. The Rabbit Lake facility, operated by Cameco, will receive 57% of the pregnant solution from McClean Lake for further processing and production of yellowcake.

### **Midwest Property**

*AREVA Resources Canada Inc., operator (69.16%); Denison Mines Corp. (25.17%); and OURD (Canada) Co. Ltd. (5.67%).*

An environmental impact statement (EIS) is currently under review by the Regulatory Authorities for an open pit mine at Midwest. AREVA suggests that Midwest has a reserve of 36.7 M lb. U<sub>3</sub>O<sub>8</sub> at a grade of 2.6% with a further resource at Midwest A of 10.1 M lb. U<sub>3</sub>O<sub>8</sub> grading 0.97%. A deposit study commissioned by Denison yielded a NI 43-101-compliant Resource Estimate also included 33.9 M lb. Ni at an average grade of 4.35%.

Providing all of the necessary permits are received, it is anticipated that site construction work at the Midwest Deposit could begin in mid 2009 and stripping of the cover rock to proposed open pit mine could commence early in 2010 with the mining of ore from mid 2011 to 2013. The ore would be milled at the nearby McClean Lake mill complex. The deposit is concentrated in a 200 m-long zone below the Mink Arm of McMahon Lake. The pit will have a footprint of about 45 ha and will be about 215 m deep. Mining will take approximately five years to complete.

### **EXPLORATION OVERVIEW**

After peaking near the beginning of 2008, land under disposition in and around the Athabasca Basin has begun to decrease as several companies have allowed some of their dispositions to lapse. Three-quarters of the Athabasca Basin, however, remains under disposition. About 40 companies are currently exploring in or adjacent to the Athabasca Basin. This activity, which encompasses over 100 projects, ranges from grassroots exploration to pre-feasibility stage projects. Financing for some of these projects has been buoyed by joint ventures with companies from Korea, China, Japan, and Brazil, all of which were announced over the past year. Most of this activity is in the eastern part of the Athabasca Basin where the major deposits are located (see map on back page); however, following new exploration successes, the western part of the basin has become the focus of grassroots exploration programs, many of which are joint ventures. Some of the largest programs are those operated by Cameco, AREVA, UEX, and Denison.

Cameco, one of the most active explorers of the basin, is undertaking a spectrum of programs ranging from greenfield reconnaissance exploration to advanced delineation work. In February 2005, Formation Capital Corporation's Canadian subsidiary Coronation Mines Ltd., a junior partner which holds a 2% interest in the project with UEM (Cameco 50%; AREVA 50%), announced a significant uranium intercept on the Virgin River property west of Cree Lake. Cameco, who operates the Virgin River project, tested the Dufferin Lake fault with two diamond-drill holes (DDH). DDH VR-18 had three intersections, the most significant of which was near the unconformity at 791.1 m depth and returned 5.83% U<sub>3</sub>O<sub>8</sub> over 6.4 m, including 2.5 m at 13.86% U<sub>3</sub>O<sub>8</sub>. That mineralized area is now referred to as the Centennial Zone. Cameco drilled six pilot holes in 2005 and 2006, many of which were mineralized. Drill programs in 2007 and 2008 yielded additional mineralization and in March 2008 the best intersections to-date were reported. Wedge cut VR-027W2 intersected a true thickness of 14.2 m at 9.386% U<sub>3</sub>O<sub>8</sub> and VR-029W1 intersected 4.5 m at 10.408% U<sub>3</sub>O<sub>8</sub>.

The basement-hosted Millennium deposit entered the pre-feasibility stage in 2006. The deposit is part of the Cree Extension Project, of partners Cameco, AREVA and Japan Canada Uranium Corporation (JCU), and is located southwest of the McArthur River Mine. Reports suggest that Millennium's Indicated Resource has increased to 46.8 M lb. U<sub>3</sub>O<sub>8</sub> at 4.53%, with an additional Inferred Resource of 9.7 M lb. U<sub>3</sub>O<sub>8</sub> at 2.06%. The discovery was the result of a persistent drill follow-up of regional clay-alteration zones and geochemical anomalies, with target delineation by sophisticated EM and gravity surveys.

AREVA is also active in both greenfield and mine-area exploration. It continues to search for deposits on the McClean Lake property in the hope of increasing reserves. AREVA is also the operator of a joint venture with UEX in the west part of the Athabasca Basin. In 2004, UEX signed an agreement with AREVA to gain a 49% interest in ten of AREVA's west Athabasca properties. By January 2008, UEX had earned 49% interest about eight years ahead of schedule through expenditures of \$30 M, mainly on the Shea Creek project, which is the highlight of the joint venture. The Shea Creek property hosts the Anne, Colette, and Kianna deposits. In February 2007, UEX announced that AREVA had delineated perched, unconformity and basement-hosted mineralization at Kianna. The companies hope to outline a zone of basement mineralization that hosts 80 to 100 M lb. U<sub>3</sub>O<sub>8</sub>, which would likely warrant development of the deep deposit. Work has begun in preparation for sinking a 950 m exploration shaft

between the Anne and Kianna deposits, with \$10 M being allocated to the project in 2008. Part of this money will be used for continued environmental studies which include geotechnical logging of the pilot holes from the Anne and Kianna deposits, drilling of geotechnical holes for piezometer installation to monitor groundwater, and packer testing and water sampling of drill holes. In addition, initial development work for the exploration shaft continues and a scoping study is due in the fall of 2008. The estimated capital cost of the shaft is \$100 M.

Exploration has proceeded in conjunction with the development work at Shea Creek. New basement mineralization intersections at the Anne Deposit included the second-best hole ever drilled. DDH SHE-122-1 contained basement mineralization grading 4.73%  $U_3O_8$  over 33.7 m, including an interval of 23.31%  $U_3O_8$  over 3.6 m between 715.9 and 719.5 m. Past highlights include SHE-115-11 which contained a 15.1 m interval grading 6.72%  $U_3O_8$ , SHE-115-14 contained 5.65%  $U_3O_8$  over 1.7 m, and SHE-115-15A contained 7.11%  $U_3O_8$  over 6.5 m. All these intersections were between depths of 800 and 850 m. AREVA has also intersected mineralization between the three deposits, which has led UEX to suggest that “the Shea Creek corridor has the potential to be mineralized over the entire three kilometre strike length between the Anne, Kianna and Colette deposits.” (UEX news release, December 4, 2007). SHE-123-2, a drill hole located between Kianna and Anne, intersected basement mineralization grading 2.8%  $U_3O_8$  over 4.9 m beginning at 800 m. A second intersection returned 0.5%  $U_3O_8$  over 2.7 m below 826 m.

Along with joint-venture partner Denison, AREVA is actively exploring the Midwest A Deposit (formally called the Mae Zone), located 3 km north of the Midwest deposit at a depth between 175 and 210 m below surface. AREVA has reported intersections of 6.25%  $U_3O_8$  over 7.1 m, 11.67%  $U_3O_8$  over 7.7 m, and 1.14%  $U_3O_8$  over 17.7 m. Follow-up drilling in 2007 was highlighted by MW-753, which intersected a zone of new, weakly mineralized sandstone, and MW-755, which intersected 2.71 e $U_3O_8$  over 21.9 m.

UEX is also the operator of a major program at the 56 418 ha Hidden Bay property, located on the east side of the basin and southwest of the historic Rabbit Lake deposits. UEX initiated a sonic drill-hole program in order to establish a NI 43-101-compliant Resource for the West Bear deposit in early 2005. The resulting Resource Estimate was 1.391 M lb.  $U_3O_8$  at 1.385%. Continued drilling extended the east boundary of the deposit a further 150 m and has led to the discovery of a small new lens of mineralization. Infill drilling in the high-grade core of the deposit produced a best-ever intersection of 6.03%  $U_3O_8$  over 10.67 m from drill-hole UEX-206. This drilling was included in the new NI 43-101-compliant Resource of 1.614 M lb. of  $U_3O_8$  grading 1.004%, which was announced in late 2007. UEX believes that West Bear, one of the shallowest (13 to 31 m) undeveloped uranium deposits in the Athabasca Basin, is economically viable. At the Raven and Horseshoe deposits, UEX plans to initiate a final feasibility study and have completed a NI 43-101-compliant Resource Estimate for the Horseshoe deposit, and are working towards NI 43-101-compliant Resource Estimates for the Raven Deposit. The Indicated and Inferred Resource Estimates of 18,693 M lb. and 1,426 M lb.  $U_3O_8$ , respectively for the Horseshoe deposit (0.05% cut off) were announced in late September 2008. The Horseshoe deposit, intersected at depths between 130 and 390 m, has now been traced over a strike length of 500 m and two stacked mineralized zones have been defined. The range of grades and thicknesses in the latest round of drilling at Raven is similar to those at Horseshoe, though the mineralization, which occurs at depths between 70 and 250 m, is more complex morphologically.

The most significant exploration success of 2008 was Hathor’s discovery of the Roughrider Zone at its Midwest NorthEast project near the Midwest and Midwest A deposits. Discovery hole MWNE-08-12 contained basement-hosted intersections of 1.16%, 2.7% and 5.29%  $U_3O_8$  over 3.3 m, 5.4 m, and 11.9 m, respectively. Hathor have since reported additional intersections as it determines the extent of the ore body. Recent highlighted intersections include 2.33%  $U_3O_8$  over 69.2 m in drill hole MWNE-08-30 and 3.35%  $U_3O_8$  over 46 m from drill hole MWNE-08-33. Unconformity depth on the property is about 210 to 215 m. Hathor and joint venture Northern Continental Resources have also continued work on their Russell Lake property where three drill holes have intersected weak mineralization in the basement.

Denison, a mid-tier uranium producer, currently holds a 22.5% interest in McClean Lake and its associated reserves and resources, as well as a 25.17% interest in the Midwest and Midwest A deposits. In the southeastern part of the basin, it continued work at the Moore Lake project, a joint venture with JNR Resources, of which Denison holds a 75% interest. The drill program at the Maverick Zone has yielded favourable results that build on 2004 successes. The latest highlights from the Maverick Zone were: an intercept of 3.2%  $U_3O_8$  over 6.5 m, including 5.25%  $U_3O_8$  and 2.1% Ni over 3.5 m in ML-140; 1.23%  $U_3O_8$  over 8.5 m and 4.2%  $U_3O_8$  over 2.1 m in ML-139; and 2.72%  $U_3O_8$  and 2.3% Ni over 5 m in ML-133. Drilling has also continued at the Wheeler River project, located northwest of Key Lake. The first drill hole in the 2008 summer program intersected a new zone of unconformity mineralization in an area not previously tested with an assay of 0.263% e $U_3O_8$  over 2.0 m near the unconformity at approximately 400 m.

CanAlaska Uranium Ltd. (CanAlaska) has completed a deal with the Black Lake First Nation to explore for uranium on reserve land. This agreement is similar to one they concluded with the Fond du Lac First Nation in November 2006. They have also reached a \$19 M agreement with Hanwha, a Korean Consortium, which may earn 50% ownership of the Cree East Project. CanAlaska has been actively drilling several of its properties and has intersected

weak mineralization at both its Key Lake and Fond du Lac properties. Two angle holes on the Fond du Lac property intersected mineralization over a 20 to 25 m interval with grades between 0.08% and 1.07% U<sub>3</sub>O<sub>8</sub> over narrow intervals.

Other junior companies have been actively exploring in the Athabasca Basin. The focus of this activity has begun to shift from airborne geophysical surveys to follow-up ground geophysical surveys and diamond drilling. This drilling has resulted in several newly discovered mineralized intersections around the basin. Purepoint Uranium intersected weak mineralization at its Red Willow project, located on the eastern side of the basin. DDH RW-19 returned grades of 0.58% U<sub>3</sub>O<sub>8</sub> over 1.0 m including 3.03% U<sub>3</sub>O<sub>8</sub> over 10 cm at about 95 m depth. Cameco Corp. and JV International Enxco announced several mineralized intersections at and below the unconformity at its Mann Lake project. Highlighted are DDH MN-019 which intersected 1.3% U<sub>3</sub>O<sub>8</sub> over 0.4 m at 547 m and MN-015 which contained 0.26% U<sub>3</sub>O<sub>8</sub> over 0.35 m at 517 m. Pitchstone Exploration and joint venture partners Uranium One and JCU have discovered mineralization in several drill holes on the Candle property. Two of the best reported intersections include basement mineralization grading 0.31% U<sub>3</sub>O<sub>8</sub> over 3.2 m below 647 m and an average grade of 1.91% U<sub>3</sub>O<sub>8</sub> from a zone in the basement between 653.3 m and 655.8 m which included 0.2 m of 41.8% U<sub>3</sub>O<sub>8</sub>. Fission Energy has also encountered weak mineralization at its Waterbury Lake property which is adjacent to Hathor's Roughrider Zone. Titan Uranium continues to drill on many of its projects and announced weak mineralized intersections at its Thorburn Lake Project, located just west of Cigar Lake. The assay returning the highest value of 0.057% U<sub>3</sub>O<sub>8</sub> over 0.6 m was sampled at the unconformity. In southwest Saskatchewan, JNR Resources has an option agreement with project operator Uranium Power Corporation at the South Fork Project east of the Cypress Hills to explore for roll-front uranium deposits. They announced the completion of a 45-hole drill program at the end of the summer from which four drill holes intersected uranium mineralization in the Ravenscrag Formation. The best intersection contained 0.028% eU<sub>3</sub>O<sub>8</sub> over 1.4 m at a depth of 66.8 m, including 0.7 m of 0.038% eU<sub>3</sub>O<sub>8</sub>.

## **5. GOLD**

### **OVERVIEW**

Of ongoing gold projects in the province, Claude Resources' Seabee Mine remains the only producing mine, having produced a total of 44,323 oz Au in 2007. Other gold projects purported to be in advanced stages include GLR Resources' Goldfields Project and Golden Band Resources' La Ronge Gold Project, both slated for production in 2009.

There remained a strong interest in gold exploration in Saskatchewan in 2008, with industry spending intentions of just under \$17 M. This activity continues to be fuelled by elevated, albeit sharply fluctuating, gold prices over the past year, which ranged between US\$750 and US\$1000/oz. since October 2007.

Gold exploration activity continues to be focused primarily on three prospective regions, specifically the Goldfields area on the north shore of Lake Athabasca, the La Ronge Gold Belt, and the Seabee Mine area of the Glennie Domain. Other notable regions of gold potential include the Amisk Lake–Flin Flon area of the Flin Flon Domain, the Pine Channel area of the Tantato Domain, the Ithingo Lake area of the Mudjatik Domain, and the Simmie Paleoplacer showing southwest of Swift Current.

### **GOLD PRODUCTION**

#### **Seabee Mine**

*Claude Resources (100%)*

The Seabee Mine, east-central Glennie Domain, remained the province's sole gold producer over the past year, with total gold production for 2007 of 44,323 oz. Through the first half of 2008, mine production totalled 19,953 oz., representing a 17% increase over the same period of last year. This result is on track with Claude's previously announced production target of 48,000 to 52,000 oz. Au for 2008, 40% of which was expected to take place in the first half of the year.

### **GOLD EXPLORATION**

#### **A) BEAVERLODGE DOMAIN**

##### **Goldfields Project**

*GLR Resources (100%)*

The Goldfields Project focused on historical gold prospects in the Lodge Bay area of northern Lake Athabasca. The largest of these, the Box deposit, was operated by Cominco Ltd. and actively mined between 1939 and 1942. GLR Resources (GLR) jointly optioned the Box and nearby Athona properties in 1987 with Lenora Explorations Ltd., and

later became sole operator. The Box and Athona deposits are both characterized by the presence of native and/or pyrite-associated gold in granite-hosted quartz veins.

In 2007-08, GLR undertook a fall-winter drilling program to further define reserves/resources at the Box deposit. Highlights of this program included intersections of 2.54 g/t Au over 27 m (hole B07-296) and 6.32 g/t Au over 16.7 m (hole B07-294). To date, over 435 holes have been drilled at the Box deposit and more than 260 at the Athona deposit.

GLR continues to work towards gold production at Goldfields in 2009. A revised, NI 43-101-compliant technical report released in May of 2008 states Proven and Probable Reserves at the Box deposit of 11 M t grading 1.7 g/t Au (601,007 oz. contained Au) and a further Measured and Indicated Resource of 14.3 M t grading 1.58 g/t Au (727,000 oz. contained Au). Mining of the Box deposit, to be undertaken using open-pit methods, is expected to have average life of mine production of 1.8 M t/year for six years, with estimated average annual production of 90,000 oz. Au. Addition of ore from the Athona deposit, with Measured and Indicated Resources of 310,000 oz. Au, could extend the life of the Goldfields mining operation by three years. GLR has received final approval from the government of an Environmental Impact Study, which includes an increase in mill processing from 2000 to 5000 t/day, and has since submitted both an Application to Construct and an Application for Decommissioning and Reclamation.

## **B) LA RONGE DOMAIN**

### **La Ronge Gold Project**

*Golden Band Resources Inc. (100%)*

Gold mineralization in the La Ronge Domain is structurally controlled and focused predominantly within Early Proterozoic volcanic and plutonic rocks. Golden Band is concentrating on historically known deposits and showings over 750 km<sup>2</sup> between La Ronge and Reindeer lakes, including four past producing mines; however, some significant new discoveries have also been made in the area. Currently, NI 43-101-compliant Reserve and Resource Estimates are available for seven of Golden Band's fully owned deposits (Table 2), including recently updated estimates for the Tower East, Birch Crossing, and Bingo deposits.

Over the past year, Golden Band has undertaken extensive surface exploration, performed surface drilling of known deposits, and commenced an underground exploration program at the Bingo deposit. This underground program included approximately 1100 m of decline access and exploration drifts and has resulted in the stockpiling of approximately 7600 t of gold mineralized material. Additional underground drilling to test the extent of gold mineralization was completed in July, subsequent to which the Bingo Exploration Project was temporarily placed in care and maintenance mode. Surface drilling programs were undertaken at the Decade, Birch Crossing, Kaslo, and Golden Heart deposits. Golden Band also entered into an option agreement with Santoy Resources Ltd., whereby the latter will expend \$3 M for work, primarily diamond drilling, on some of the more advanced projects in the La Ronge Gold Belt.

Gold production by late 2009 in the La Ronge gold belt remains Golden Band's objective. To this end, a full pre-feasibility study recently commenced for evaluation of the first four years of the operation, for which mill feed is to be extracted from the Bingo, Komis, and EP deposits. Preparation of work contracts is also underway for the refurbishment and expansion of the central Jolu mill, which is expected to commence in March 2009. In October, Golden Band submitted an EIS for the project, which it expects to be processed by the spring.

### **Greywacke Deposit**

*Masuparia Gold Corporation (51%); Golden Band (49%).*

The Greywacke deposit is unique amongst gold deposits in the La Ronge belt in being hosted by sedimentary rocks. Masuparia Gold Corporation recently released the results of winter drilling, comprising nineteen holes at both the North and South zones of the deposit. Drill results included an intersection of 17.3 g/t Au over 5.33 m (hole GW08-89) and 5.05 g/t Au over 21.50 m (GW08-98). A new NI 43-101-compliant Reserve/Resource Estimate was released for the joint venture in the spring of 2008 (Table 2).

### **Jojay Project**

*Wescan Goldfields Inc. (100%)*

In 2007-08, Wescan Goldfields Inc. reported results of new drilling at its Jojay project, located ~135 km northwest of La Ronge, within the La Ronge gold belt. The drilling program at Jojay, an advanced stage project, comprised more than 6000 m over 22 holes. Significant intersections included 22.95 g/t over 1.7 m (JJ07-02) and 9.37 g/t Au

**Table 2 - Published reserves/resources for select gold deposits in Saskatchewan.**

Ownership (at closure, if mined out; at present if deposit not yet mined), operator first	% share	Mine/Deposit	tonnes	Total Au Production (oz.)	Au grade (g/t)	Au grade (oz./ton)
<b>PRODUCTION (Previous + Historical)</b>						
Cameco Corporation	50	Star Lake Mine,				
Starrex Mining Corporation Ltd.	35	21 and Rush zones <sup>1</sup>	208 650	76,947	17.1	0.61
Urangerz Expl. & Mining Ltd.	15					
Wescan Goldfields Inc.		Jasper Mine <sup>1</sup>	140 127	82,697	18.8	0.67
Corona Corporation	100	Jolu Mine, Rod Main/South zones, Mallard zone <sup>1</sup>	472 220	203,751	14.4	0.52
Claude Resources Inc.	100	Seabee Mining Operation <sup>2</sup>	3 500 000	820,000	7.9	0.28
Cameco Corporation	67	Contact Lake Mine,	1 313 000	338,000	8.01	0.29
Urangerz Expl. & Mining Ltd.	33	Bakos zones <sup>1</sup>				
Golden Band Resources Ltd.	100	Komis	4 786 230	29,468	6.90	0.25
GLR Resources Inc.	100	Box Mine	1 418 320	64,066	1.55	0.06
Pamon Gold Mines - O.G. Macdonald	100	Prince Albert Mine, Monarch zone	—	4,882	—	—
<b>RESERVES (Proven + Probable)</b>						
			tonnes	<i>in situ</i> Au (oz.)	Au grade (g/t)	Au grade (oz./ton)
Claude Resources Inc.	100	Seabee Mine	934 098	201,039	6.69	0.24
Claude Resources Inc.	100	Santoy 7	114 322	24,766	6.74	0.24
GLR Resources Inc.	100	Box	10 997 000	601,007	1.7	0.06
<b>RESOURCES - Measured + Indicated</b>						
Claude Resources Inc.	100	Porky West	90 000	21,200	7.33	0.26
Claude Resources Inc.	100	Porky Main	160 000	38,600	7.50	0.27
Claude Resources Inc.	100	Santoy 8	727 500	210,000	8.98	0.32
Claude Resources Inc.	100	Santoy 7	190 000	51,400	8.42	0.30
GLR Resources Inc.	100	Box	14 296 000	727,000	1.58	0.06
GLR Resources Inc.	100	Athona	8 607 000	310,000	1.12	0.04
Golden Band Resources Ltd.	100	Bingo	97 109	44,056	14.1	0.51
Golden Band Resources Ltd.	100	Golden Heart	4 486 400	259,900	1.80	0.06
Golden Band Resources Ltd.	100	Komis <sup>3</sup>	990 000	121,300	3.81	0.14
Golden Band Resources Ltd.	100	Memorial	288 400	26,220	2.83	0.10
Golden Band Resources Ltd.	100	Tower East	5 019 080	299,835	1.86	0.07
Golden Band Resources Ltd.	100	Eric Partridge (EP)	22 700	5,240	7.18	0.26
Masuparia Gold Corporation	51	Greywacke	184 000	49,700	8.40	0.30
Golden Band Resources Ltd.	49					

**Notes:**

Data in this table do not all necessarily conform to the current legal definition of reserves and resources by CIM.

Data are from a variety of public sources including published reports, public records, corporate websites, and Saskatchewan Mining Association *Facts Sheets*. Data for different deposits are not necessarily comparable.

<sup>1</sup> mined out.

<sup>2</sup> currently in production; values are approximate.

<sup>3</sup> excludes extracted ore.

over 2.60 m (JJ08-09). These new drilling results will be incorporated into a NI 43-101-compliant technical report and resource estimate.

## C) GLENNIE DOMAIN

### Seabee Mine Area

*Claude Resources (100%)*

In 2007-08, Claude continued to focus its exploration activity on the Seabee mining operation, located in the Laonil Lake area. This operation consists of the main Seabee deposit and several satellite deposits, including the Santoy 7, 8, and 8E deposits (11 to 14 km east of Seabee) and the Porky Main and West deposits (3 km northwest of Seabee). These deposits are hosted by quartz veins that were emplaced within in northeast-trending, sub-parallel shear zones within ultramafic to intermediate rocks of the greenstone-hosted Laonil Lake Intrusive Complex.

The bulk of exploration work centred on an underground exploration project at Seabee, to test the extent of ore mineralization at the deposit, and drilling of the Santoy 8/8E deposit, to facilitate deposit interpretation and modeling. Notable results at the Seabee underground project include intersections of 32.52 g/t Au over 4.80 m (hole U08-603) and 10.16 g/t Au over 9.43 m. Drilling at Santoy 8/8E yielded intersections of 314.25 g/t Au over 1.74 m (hole JOY-07-479) and 24.31 g/t over 10.88 m (hole JOY-07-286). Based on all drilling results from Santoy 8 over the past year, mineralization is confirmed over a strike length of 600 m, a dip length of 350 m and remains open along strike and down plunge to the north. Mineralization at Santoy 8E has been intercepted over a strike length of 200 m, a dip length of 250 m and remains open along strike and down plunge to the north. The new Santoy 8/8E drilling results also permitted the generation of a new NI 43-101-compliant Reserve/Resource Estimate for the deposit (Table 2).

## 6. BASE METALS

### OVERVIEW

There was no base metal production in Saskatchewan in 2007. After increasing three-fold between 2006 and 2007, mineral exploration expenditures for base metals are expected to maintain last year's level of around \$10 M (Figure 1). This is despite slightly weakening base metal prices during 2008, with Pb, Zn, and Ni falling to less than half and Cu falling to half of their October 2007 values, at press time. New claim staking activity seemed to be mainly focused on the Flin Flon Domain, both in the sub-Phanerozoic and exposed part of the Shield. Many of the new claims were staked in the western extension of the domain between Suggi, Bigstone, and Kakinagimak lakes and most of the associated exploration activity is targeting volcanogenic massive sulphide (VMS) deposits. Base metals exploration is also being carried out in the vicinity of the historic Rottenstone Ni-Cu-platinum group element (PGE) mine, and on sediment-hosted sulphide occurrences in the Wollaston and Kisseynew domains. Table 3 outlines reserves and resources of base metal deposits in the province.

### BASE METALS EXPLORATION

#### Flin Flon Domain: Cu-Zn VMS Deposits

In December 2007, Foran Mining Corporation (Foran) announced it had entered into a Memorandum of Understanding (MOU) with the Bureau of Geology and Mineral Exploration of Anhui Province, China. The MOU is expected to lead to an agreement for the bureau to provide financial financing and manpower to assist in the exploration of certain property claims located in Saskatchewan, including McIlvenna Bay. The 2007-08 winter drilling program was mainly focused on the down dip and down plunge extension of the No. 2 massive sulphide lens of the deposit. An earlier hole intersected the near solid sulphide (NSS) unit at a 855.78 m with a true width of 4.9 m grading 0.31% Cu, 9.07% Zn, 0.170 g/t Au, and 17.7 g/t Ag, underlain by a 1.5 m-thick chloritic stringer alteration zone. Two subsequent vertical holes each intersected 1.8 m (not true width) of NSS. The first hole intersected the zone at a vertical depth of 514 m, grading 0.14% Cu, 0.71% Pb, 10.17% Zn, 0.14 g/t Au, and 22.9 g/t Ag. This is conformably underlain by 6.44 m of disseminated chloritic rock, grading 1.02% Cu, 0.24% Pb, 0.85% Zn, 0.45 g/t Au, and 25.8g/t Ag. A second hole encompasses a 1.8 m disseminated to NSS band grading 0.16% Cu, 0.95% Pb, 1.41% Zn, 0.30 g/t Au, and 57.4 g/t Ag.

Exploration Syndicate, Inc. announced in May 2008 that the company had discovered two significant Cu-Zn deposits during their winter drilling program, the Zang Zone and the M45 Zone. After identifying seven bore hole EM and ground geophysical targets, of which two were deemed high priority, the follow-up drilling on their sub-Phanerozoic McKenzie Lake Project 70 km southwest of Flin Flon intersected alteration and mineralization in three holes. The Zang Zone was drill-tested by three holes, two of which intersected mineralization; the M45 Zone was tested by one hole, which intersected alteration and mineralization. Hole ML-08-17 on the northern section of the Zang Zone intersected 3.69 m of stringer sulphide mineralization averaging 4.31% Cu, 0.18% Pb, 0.84% Zn, 0.19 g/t Au, and 23.5 g/t Ag; including an intersection of 1.05 m averaging 6.90% Cu, 0.57% Pb, 2.07% Zn, 0.18 g/t Au, and 33.1 g/t Ag. Hole ML-08-21 was drilled on the southern section and intersected a semi-massive sulphide

**Table 3 - Published reserves and geological resources for select base metal deposits in Saskatchewan.**

Owner (s) *	Property	Reserves and Resources (tonnes)	Cu %	Zn %	Pb %	Ni %	Co %	Au g/t	Ag g/t
<b>MINEABLE RESERVES</b>									
HudBay Minerals Inc.	Callinan (Sask Portion)	364 160	1.21	3.15	–	–	–	1.55	19.06
HudBay Minerals Inc.	Konuto Lake	235 889	3.90	1.40	–	–	–	2.10	8.60
<b>GEOLOGICAL RESOURCES</b>									
Foran Mining– Copper Reef Mining	Mclivenna Bay	6 671 000 <sup>1</sup> <i>(Indicated Resource)</i>	0.87	6.51	–	–	–	–	26.0
		6 000 000 <sup>1</sup> <i>(Inferred Resource)</i>	0.83	5.89	–	–	–	–	24.8
Murgor Resources Inc.	FON Zone	5 007 888 <sup>2</sup> <i>(with 1% Zn cut-off)</i>	0.25	3.73	–	–	–	–	0.35 (oz/t)
		or 1 677 377 <sup>2</sup> <i>(with 3.5% Zn cut-off)</i>	0.27	6.79	–	–	–	–	0.54 (oz/t)
Murgor Resources Inc.	Abbott Lake Zone	491 468 <sup>2</sup> <i>(with 0.5% Cu cut-off)</i>	0.77	0.17	–	–	–	–	0.3 (oz/t)
Murgor Resources Inc.	Tyr	180 860 <i>(historical numbers)</i>	2.80	1.20	–	–	–	4.98	7.15
Manicouagan	Brabant/PEG	1 475 000 <sup>3</sup> <i>(Indicated Resource)</i>	0.79	9.18	0.23	–	–	0.15	32.6
		2 975 000 <sup>3</sup> <i>(Inferred Resource)</i>	0.55	5.55	0.13	–	–	0.10	13.9
Leader Mining International Inc.	Knife (Mokoman) Lake	20 000 000	0.74	–	–	–	–	–	–
Claude Resources	Elizabeth Lake	4 985 938	0.73	–	–	–	–	–	–
Pure Nickel Inc.	Axis Lake	3 402 000	0.60	–	–	0.60	0.15	–	–
Golden Arch Resources– 101083503 Saskatchewan Ltd.	George Lake	2 630 880	–	3.67	0.53	–	–	–	–
Foran Mining	Schotts Lake	1 983 850	0.61	1.35	–	–	–	–	–
Foran Mining	Bigstone Lake	1 451 000 308 000	2.90 –	– 11.2	–	–	–	–	–
Shane Resources	Brownell Lake	1 251 900	0.56	1.75	–	–	–	–	–
Pure Nickel Inc.	Currie Lake	47 536	–	–	–	0.79	–	–	–

**Notes:**

\* Operator listed first.

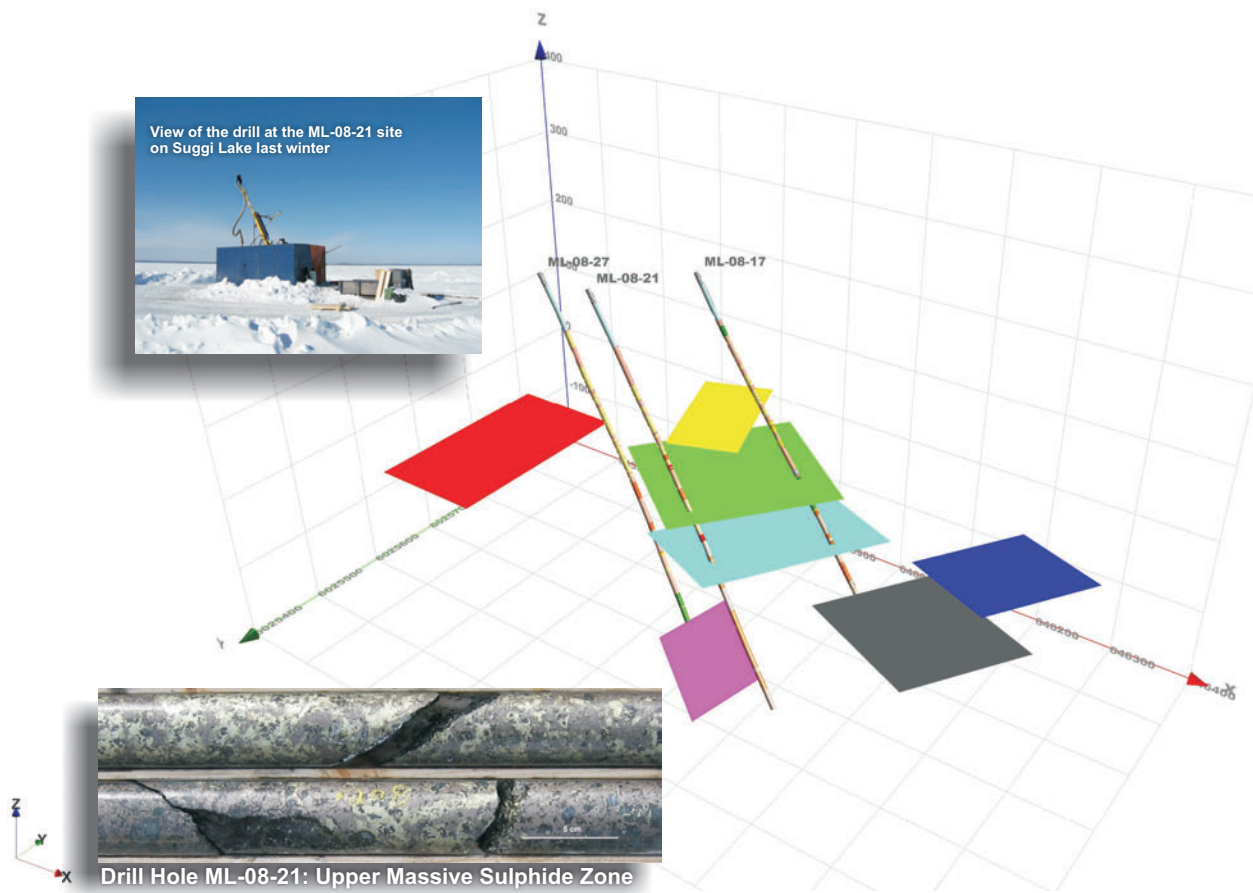
Data in this table do not necessarily conform to the current legal definition of reserves and resources by CIM. Resources are measured and/or indicated unless otherwise specified. Data are from a variety of public sources including published reports, public records, corporate websites, and Saskatchewan Mining Association *Facts Sheets*, and may not be NI 43-101 compliant. Data for different deposits are not necessarily comparable.

<sup>1</sup> NI 43-101-compliant Resource prepared by Roscoe Postle Associates Inc. (Foran Mining press release, 5 December 2006).

<sup>2</sup> NI 43-101-compliant Inferred Resource estimate prepared by Wardrop (Murgor Resources Inc. press release, 20 February 2007).

<sup>3</sup> NI 43-101-compliant Resource estimate prepared by MPH Consulting Ltd. (filed 12 September 2008).

zone and two intervals of massive sulphides. The semi-massive sulphide section averaged 0.10% Cu and 6.05% Zn over a 1.87 m interval between 167.36 to 169.23 m, including a 0.84 m section assaying 0.06% Cu and 9.86 % Zn. The first of the two massive sulphide intersections was encountered between 206.05 and 211.03 m and averaged 5.69% Cu, 3.22% Zn, 0.10 g/t Au, and 28.1 g/t Ag over a core length of 4.98 m which included a 2.10 m section averaging 9.31% Cu, 4.67% Zn, 0.18 g/t Au, and 43.7 g/t Ag. A second massive sulphide intersection occurred from 287.80 to 295.22 m and averaged 3.04% Cu, 6.81% Zn, 0.05 g/t Au, and 11.8 g/t Ag over 7.42 m. The hole into the M45 Zone had three intersections within felsic volcanic rocks, the best of which was 1% Cu and 0.21% Zn over 4.35 m, including 1 m with 3.4% Cu.



**Figure 6 - 3-D view of the Zang Zone drill holes and modeled EM conductor plates. The plates are the best fit to the 3-D EM data collected from surface (two transmitter loops) and from all three of the bore holes. Note only two of the plates have been intersected by drill holes. The view is looking from southeast to northwest and the grid lines are 100 m apart. Images are courtesy of Exploration Syndicate, Inc.**

Murgor Resources Inc. (Murgor) released a NI 43-101-compliant Mineral Resource Estimate for the Fon deposit in February 2007, outlining inferred resources of 1 677 377 t graded 6.79% Zn, 0.27% Cu, 0.54 oz/t Ag (with a 3.5% Zn cut-off). Murgor also staked ten new mineral claims centred in the Gifford Bay area of Kakinagimak Lake and two claims west of Mari Lake, all in the northwestern extension of the Flin Flon Domain. Two drill holes, targeting the same ground time-domain electromagnetic (TDEM) anomaly in the Gifford Bay area, are reported to have intersected biotite-garnet-cordierite-sillimanite gneisses and associated sulphide mineralization. Historical resources at the Abbot Lake deposit were supported with NI 43-101-compliant Inferred Resource Estimates of 7.57 M lb. Cu, 1.68 M lb. Zn, and 147,440 oz/ton Ag (cut-off grade 0.5% Cu).

#### **Rottenstone Domain: Copper-Nickel Sulphide Deposits**

In November 2007, Mantis Mineral Corp. (Mantis) announced it had signed a Letter of Agreement to acquire up to a 60% interest in Uravan Minerals Inc.'s Rottenstone property through \$10 M in exploration expenditures, with a commitment to spend at least \$800,000 in 2008. In April, Mantis was granted a one-year extension for these required exploration expenditures, in return for 50,000 common shares. During the spring and summer, the company announced the completion of an airborne versatile time-domain electromagnetic (VTEM) survey, identifying 12 high-priority drill targets for Ni-PGE on their 13 364 ha property. An initial drill program began in October and will test for a proposed feeder zone underneath the existing open pit deposit, as well as test conductors beyond the deposit, with further drilling to follow during the winter. The Rottenstone Mine produced 26 057 t of ore between 1965 and 1969, which averaged 3.28% Ni, 1.83% Cu, and 9.63 g/t PGM+Au. The deposit consisted of dense, net-textured, disseminated, and rare massive Ni-Cu sulphides enriched in platinum-group metals. It is hosted by a harzburgite-orthopyroxenite sill within a pelitic migmatite unit.

#### **Kisseynew Domain: Cu-Zn VMS Deposits**

In April 2008, Manicouagan Minerals Inc. (Manicouagan) announced that completion of the Phase II drilling program on its wholly-owned polymetallic Brabant Lake Zn-Pb-Cu-Ag deposit (MacKenzie or PEG), located 175 km northeast of La Ronge. In September, Manicouagan released an updated NI 43-101-compliant Resource

Estimate incorporating 129 drill holes, which outlined an Indicated Resource of 1.48 M t grading 0.79% Cu, 9.18% Zn, 0.15 g/t Au, and 32.6 g/t Ag. An additional 2.98 M t grading 0.55% Cu, 5.55% Zn, 0.10 g/t Au, and 13.9 g/t Ag, and were measured as an Inferred Resource. This equates to approximately 25.7 M lb. Cu, 298.5 M lb. Zn, 7,100 oz. Au, and 1.55 M oz. Ag, in the Indicated category with an additional 36.1 M lb. Cu, 364.0 M lb. Zn, 9,600 oz. Au, and 1.33 M oz. Ag in the Inferred category. The Zn and Cu grades for the Indicated category represent a 77% and 39% improvement, respectively, as compared to previously published resource estimates.

### **Wollaston Domain: Sedimentary-hosted Deposits**

During the last summer, Wildcat Exploration Ltd. (Wildcat) completed airborne magnetic and electromagnetic surveys (847 line-km) of the two northernmost claims of its Foster River Zn-Pb-Ag property, located 140 km northwest of La Ronge, and followed up with lithological and structural mapping. Wildcat hopes to discover economic Broken Hill-type Zn-Pb-Ag mineralization on the property. The property contains nine Pb-Zn showings, as well as one copper and one gold showing.

In October 2007, Golden Arch Resources (Golden Arch) arranged for \$1 M in funding, partially intended for exploration on its Wakefield Lake zinc prospect in the Wollaston Domain, located about 250 km northeast of La Ronge. The Saskatchewan Ministry of Highways and Infrastructure has begun to build a new all-weather road (Highway #995), which will pass through the mineral claims held by Golden Arch. The project covers six mineral claims and includes the George Lake Zn Deposit, which has a geological (non-NI 43-101 compliant) resource of 2.6 M t at 3.67% Zn and 0.53% Pb, using a 2% Zn cut-off. The company announced in June 2008 that it had completed six diamond drill holes to an approximate depth of 300 m, for a total of 1749 m of recovered core. All six holes intersected sulphide mineralization, with one of the better intersections reported as 6.96% Zn, 1.42% Pb, and 5.91 g/t Ag over 8 m. According to an August news release by the company, the Wakefield Lake zinc deposit appears to be a tabular body with a true thickness of about 27.4 m and a strike extent of 488 m, down to a depth of 305 m.

## **7. PLATINUM GROUP METALS**

As with most other commodities, platinum group elements (PGE) prices have undergone extreme volatility in 2008, with platinum hitting record highs of just over US\$2,200/oz. in March, to fall back to more normal levels around US\$1,000/oz. in November 2008. The record high prices were in part due to previously projected/feared short falls, made worse because mines in South Africa, the world's leading platinum producer, had been restricted to 90% of normal power use. Increased power demands as a result of wet and cold weather had led to rolling black-outs, in part because the state-owned electrical utility had not upgraded old plants and infrastructure in over ten years. The increased demand for platinum over the past few years is largely due to an increase of diesel-powered passenger vehicles, which need platinum for their catalytic converter. In catalytic converters of gasoline-powered vehicles, platinum can be substituted with cheaper palladium, a substitution not possible in diesel-powered vehicles. In Europe, more than 30% of cars are powered by diesel engines and in 2006 more than half of all new cars sold there were diesel. In comparison, fewer than 3% of passenger vehicles in the United States are diesel, but that number is speculated to increase in the future.

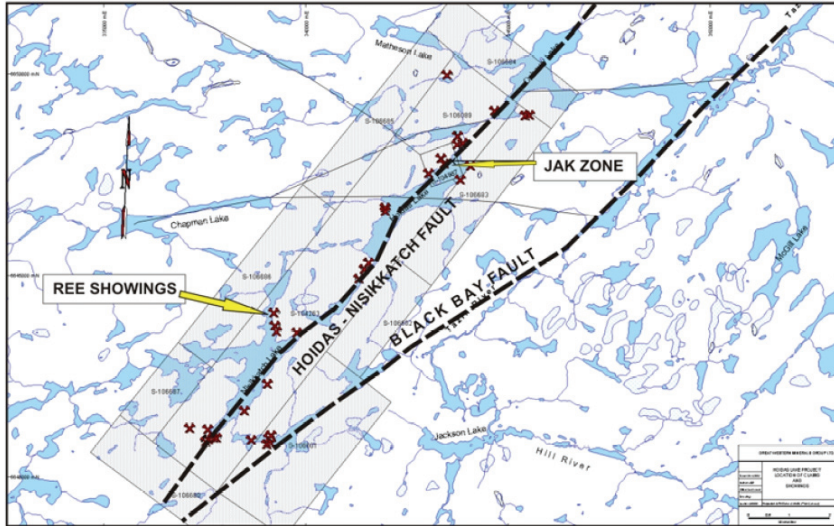
In Saskatchewan, PGE occurrences and showings are located primarily in the Peter Lake Domain, where they are associated with the Archean Swan River Complex, a partly-layered gabbroic intrusion; and the Porter Bay Complex, a Paleoproterozoic intrusive complex with well-preserved layering and varitextured gabbros. They are also known in the Haglund Lake area. During 2008, no exploration activity was undertaken on existing projects in the Peter Lake Domain. A Ni-PGE property ('Rottenstone' property) in the Rottenstone Lake area is currently being explored by Mantis and reported on in the base metals section of this report (see above). PGM concentrations are also known in the Patzer Lake area, south of the Clearwater River, and in the area west of Mooney Island on the west shore of Reindeer Lake.

## **8. RARE EARTHS**

### **Hoidas Lake Property**

*Great Western Minerals Group Ltd. (GWMG) (100%)*

The Hoidas Lake property, located about 60 km northeast of Uranium City in the Ena Domain, consists of 10 188 ha spread over a 12 km-long belt and contains over 30 rare earth element (REE) showings. The property lies just under 10 km west of the regional-scale Black Bay Fault, where a number of mylonite zones are exposed within migmatitic, granitic, and tonalitic gneisses. Previous to 2008, exploration efforts were concentrated on the JAK Zone, near the north end of the belt (Figure 7). Results from 92 drill holes established that the mineralized zone extended 750 m in length and 150 m in depth with an average thickness of about 40 m. The zone remained open along strike and at depth.



**Figure 7 - Map of the distribution of REE showings along the Hoidas-Nisikkatch fault (with permission of GWMG).**

During the winter of 2008, GWMG conducted drilling on its Hoidas Lake Property with the objective of increasing the tonnage in the JAK zone to a level that could support a 1000 t/day operation, doubling the estimated throughput from a previous model. Thirty-two holes totalling 6836 m were drilled to depths of 300 m as part of a \$2.5 M program. The JAK Zone Vein System was extended a further 250 m along strike, to 1000 m in length, and to a depth of 300 m. It remains open along strike and at depth. A new vein system was also intercepted 30 m into the footwall of the JAK II Zone during the winter drilling program. The new vein system has been traced along strike for 250 m and was intersected at

depths between 166 and 315 m below surface. In their September 12, 2008 news release, GWMG reported assay results from the new footwall zone in which grades vary from 0.49% total rare earth oxide (TREO) over a core length of 7.4 m to 2.1% TREO over a core length of 10.9 m, including interval grades of up to 4.6% TREO over a core length of 3.6 m. GWMG require additional drilling before those grades are integrated into the properties' resource calculation. Similar to other mineralized zones on the property, this new zone remains open to the south, at depth and also up dip.

Further exploration and drilling were carried out during the summer to test VLF-EM and surface showings, including the Nisikkatch South vein system approximately 10 km to the southwest of the JAK Zone. At the end of July 2008, GWGM reported that two holes testing the surface mineralization at the Nisikkatch South showings encountered narrow veins of apatite-diopside-allanite mineralization.

At the time of this report's compilation no further updates have been provided by GWMG on Wardrop Engineering Inc.'s commissioned NI 43-101-compliant Resource Estimate, released on January 31, 2007, of 1 150 000 t at 2.362% TREO + Y<sub>2</sub>O<sub>3</sub> for the JAK Zone. At current international market values for the REO (<http://www.metal-pages.com/>, REO 99% min FOB China, accessed 4 November 2008), the JAK Zone contains ore with TREO + Y<sub>2</sub>O<sub>3</sub> (100% basis) worth US\$13,401/t (Lu<sub>2</sub>O<sub>3</sub> concentrations insignificant; international market prices for Ho<sub>2</sub>O<sub>3</sub>, Er<sub>2</sub>O<sub>3</sub>, Tm<sub>2</sub>O<sub>3</sub> and Yb<sub>2</sub>O<sub>3</sub> were not available to be included in the calculation), which compares favourably with well known deposits such as Bayan Obo (US\$9,782/t) and Mountain Pass (US\$8,633/t). The reason for this added value lies in the heavy rare earth-enriched nature of the Hoidas Lake ore. Heavy rare earth element oxides command significantly higher prices than light rare earth element oxides. Nd<sub>2</sub>O<sub>3</sub>+Eu<sub>2</sub>O<sub>3</sub> constitute 23% of the TREO + Y<sub>2</sub>O<sub>3</sub> in the JAK Zone ore and approximately half of its value is due to these oxides (Nd<sub>2</sub>O<sub>3</sub>: 99% min FOB China US\$18,000/t to US\$18,500/t; Eu<sub>2</sub>O<sub>3</sub>: 99% min FOB China US\$500,000/t to US\$520,000/t).

In their July 2, 2008 news release, GWMG announced the complete acquisition of Less Common Metals Ltd., located in Birkenhead UK, as part of their distinctive "mine to market" strategy, thus providing fully vertically integrated supply capability. Less Common Metals Ltd. produces a variety of special alloys for use in the automotive, battery, magnet, and aerospace industries.

In response to a sharp and continuous increase in world demand for phosphate fertilizers in 2007, GWGM is considering including the apatite-rich by-product rocks (phosphate values range from 0.05% to 40.9%, with a average value of 17.7%) as part of their project modelling for Hoidas Lake.

## 9. DIAMONDS

### OVERVIEW

In 2008, spending for diamond exploration is forecasted to be about \$95.5 M, up from actual total expenditures of \$76.6 M in 2007. Once again, the bulk of the 2007 expenditures are targeted at two advanced stage exploration projects in the Fort à la Corne area: the Star Kimberlite Project and the FalC JV Project.

Shore Gold Inc. (Shore) is continuing to evaluate the Star Kimberlite Project. Work on the project to date has allowed Shore to generate a NI 43-101-compliant Mineral Resource Estimate, while the company is continuing with desktop engineering and environmental studies while working towards generating a full Mineral Reserve calculation and a bankable feasibility study.

The Fort à la Corne Joint Venture (FaC JV) project, operated by Shore, is a partnership between Shore's wholly owned subsidiary Kensington Resources Ltd. (60%) and Newmont Mining Corporation of Canada Ltd. (40%). The FaC JV has budgeted \$86.8 M for an accelerated exploration and evaluation program of their Orion kimberlite cluster. The focus of the work will be on the southeast end of the Orion cluster (Orion South), into which Shore has sunk a shaft, and has begun a large bulk sampling program. The goal of the program is to recover enough diamonds to determine representative grade and diamond values for the various geologic phases. The FaC JV has also begun exploring its newly defined Taurus kimberlite cluster, which it believes has potential for tremendous volumes of diamond-bearing kimberlite.

Vaaldiam Resources Ltd. (Vaaldiam) completed its acquisition of Great Western Diamonds Corp. (GWD). Included in the acquisition are GWD's mineral exploration permits and the Candle Lake Kimberlites, which Vaaldiam is continuing to evaluate.

Goldsource Mines Inc. (Goldsource) drill tested several geophysical anomalies on its Crossroad and Border claim blocks in the central and eastern Saskatchewan, but no kimberlite was intersected.

Grassroots exploration continues to occur in the Fort à la Corne area and in other areas throughout the province. Mineral exploration permits have been granted in areas around Ituna, Watson, Wood Mountain, Big River, Hudson Bay, Green Lake, and Primrose Lake. The precedent of large kimberlite bodies combined with the abundance of unexplained diamond indicator mineral anomalies continues to draw diamond exploration companies to various regions of Saskatchewan.

### Star Kimberlite Project

*Shore Gold Inc. (100%)*

The Star Kimberlite (Star), located at the southeast end of the Fort à la Corne kimberlite field (Figure 8), consists predominantly of pyroclastic, crater-facies rocks covering a footprint area of approximately 350 ha and ranging from 3 m to more than 607 m thick. Shore is continuing work on its \$68 M pre-feasibility study of Star. The study incorporates core drilling, geologic modeling, underground bulk sampling, large-diameter drilling (LDD), diamond valuations, engineering, and environmental studies.

Shore has developed a robust 3-D geologic model for Star, based on 479 surface and underground drill holes, which totalled over 80 km of drilling, and 2,685 *in situ* bulk density measurements. The geologic model divides the massive body into five major eruptive kimberlite phases: Cantuar, Pense, Early Joli Fou (EJF), Mid Joli Fou (MJF), and Late Joli Fou (LFJ). Each kimberlite phase is named for the relative age of the sedimentary unit in which it is hosted. The EJF kimberlite phase has the highest average grade, and is the most volumetrically significant phase, composing about 60% of the Star body.

The underground bulk sampling (UGBS) program, which was designed to recover large parcels of diamonds from Star's various geologic phases for grade and diamond value estimations, produced a total of 75 404.87 t of kimberlite which yielded 10,861.16 carats of diamonds (greater than 0.85 mm). All samples were processed in the on-site Dense Media Separation plant, from which concentrates are batched through an X-ray Flow-sort. Tailings from the Flow-sort are further processed over a grease table to ensure recovery of low-luminosity diamonds. Concentrates remaining after these two procedures are sent to SGS Lakefield Research for final diamond recovery, description, and weighing. The four largest stones recovered from Star weighed 49.50, 22.56,

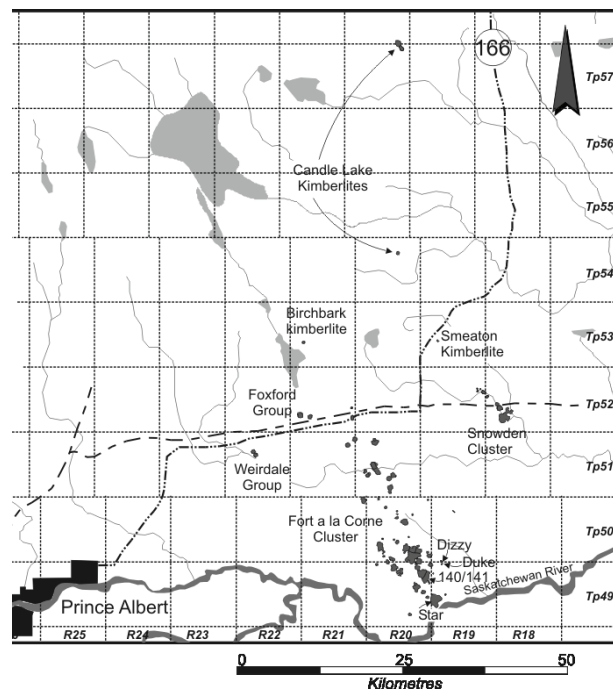


Figure 8 - The Fort à la Corne kimberlite field.

19.71, and 19.67 carats. While the UGBS provided Shore with an estimate of the types of recoveries that could be expected in a mining scenario, it represents a small portion of Star Kimberlite as a whole. In order to extrapolate the results from the UGBS across the body, Shore conducted an extensive LDD program.

Shore completed 95 LDD holes totalling 19 350 m, in a grid pattern across the Star body. A grid spacing of 100 m by 100 m was established within thicker parts of the body, and 200 m by 200 m spacing was used on the thinner, more peripheral portions of Star. The LDD holes recovered 9 788.78 t of kimberlite chips >1 mm for processing, which represented 18 923.75 *in situ* tonnes of kimberlite. The 9788.78 t produced 1,336.29 carats, representing an average *in situ* grade of 7.06 cpht. Shore believes the LDD recovery process does not reflect the true nature of *in situ* grades, as the larger, more valuable stones tend to be under-sampled, while the drilling process itself tends to break many of the stones that are recovered while stones crushed below 1 mm are lost. Shore and AMEC developed correction factors to adjust LDD grades upward to account for the diamond breakage and under sampling. These correction factors were also used to extrapolate the grades that were derived from the UGBS, for each geologic phase of Star, across the body.

WWW International Diamond Consultants Limited (WWW) was commissioned by Shore to value the large parcel of diamonds recovered from the bulk sample. Table 4 breaks down the estimated range of values for the parcel for each of the major eruptive phases. The difference between the actual price and the modeled value results from under-sampling of the large (+5 carat) diamonds that are expected to be recovered in an actual mining scenario. For this parcel, WWW estimates that the resource lithology weighted average model value is US\$177/carat. WWW stated that the average model value lies between a minimum of US\$146/carat and a high of US\$225/carat.

Shore combined the valuation results with those from the UGBS, and the LDD drilling program and, in June 2008, released a NI 43-101-compliant Mineral Resource Estimate that outlined an Indicated Resource of 122.7 M t, at a grade of 13.6 cpht, and an Inferred Resource of 30.3 M t at a grade of 13.1 cpht (Table 5).

The estimate designates a further 100 to 120 M t of Star as ‘potential mineral deposit’, for which further work is required to upgrade to Mineral Resource status. With the bulk of the sampling requirements completed on the project, Shore has shifted focus on the project to desktop engineering and environmental studies that will also be required to progress the project through to the bankable feasibility stage.

**Table 4 - Summary of 2008 WWW re-valuation for the Star Kimberlite.**

Kimberlite Lithology	Carats	Actual Price (\$/carat)	Model Price (\$/carat)	Minimum Price (\$/carat)	High Price (\$/carat)
Cantuar	1,126.32	\$193	\$309	\$247	\$420
Pense	1,410.73	\$79	\$103	\$88	\$126
Early Joli Fou	7,123.10	\$115	\$167	\$138	\$216
Mid Joli Fou– Late Joli Fou	80.09	\$84	\$105	\$75	\$152
<b>Total</b>	<b>9,740.24</b>	<b>\$120</b>	<b>\$177</b>	<b>\$146</b>	<b>\$231</b>

Note: Diamonds derived from sample batches containing mixed lithologies, and from surface stockpile clean-up, have not been included in the diamond populations used for the determination of these modeled prices to ensure the integrity of the parcels and the accuracy of the modeled prices.

Source: AMEC, 2008.

**Table 5 - Mineral Resource Estimate for the Star Kimberlite, effective date 2 June 2008.**

Domain	Indicated				Inferred			
	Cut-Off (cpht)	Material Above Cut-off (thousand tonnes)	Grade (cpht)	Contained Carats (million)	Material Above Cut-off (thousand tonnes)	Grade (cpht)	Contained Carats (million)	Waste (thousand tonnes)
Early Joli Fou	2.35	90 240	14.9	13.4	24 640	12.9	3.2	7 384
Cantuar	1.21	10 521	13.4	1.4	2 777	13.3	0.4	42
Pense	4.03	6 273	13.6	0.9	2 769	14.6	0.4	206
Late Joli Fou	3.34	0	3.5	0	0		0	26 596
Mid Joli Fou	3.34	15 653	6	0.9	88	5	0	4 158
Waste		0	0	0	0	0	0	859 351
<b>Total</b>		<b>122 687</b>	<b>13.6</b>	<b>16.7</b>	<b>30 274</b>	<b>13</b>	<b>3.9</b>	<b>897 737</b>

Source: AMEC, 2008.

**Fort à la Corne Joint Venture (FaC JV)**

*Kensington Resources Ltd., a wholly owned subsidiary of Shore Gold Inc. (60%), and Newmont Mining Corporation of Canada Ltd. (40%)*

The other significant diamond exploration program is that of the Fort à la Corne Joint Venture (FaC JV) in which Shore is the operator with a 60% interest and Newmont Mining Corporation of Canada has a 40% interest. The FaC JV's mineral disposition holdings include 63 drill-confirmed kimberlite bodies in the Fort à la Corne area, some of which are volumetrically amongst the largest in the world. The larger kimberlite bodies are commonly composite in nature and comprise multiple eruptive phases of mainly pyroclastic, crater-facies deposits. The Taurus and Orion kimberlite clusters are two examples of what are interpreted to be large coalescing kimberlite complexes (Figure 9).

The Orion Cluster, believed to be a 7 km long coalescence of at least eight eruptive centres, is estimated to contain up to 1.4 B t of kimberlite.

From north to south, the eruptive kimberlite centres that compose the Orion Cluster are: Orion North – kimberlites 120, 147, 148, and 220; Orion Centre – kimberlites 145 and 219; and Orion South – kimberlites 140/141 and 133. The Orion North portion of the cluster has been delineated by over 40 km of core drilling, in 181 holes, which intersected 15 648 m of kimberlite. In addition, 20 LDD holes have recovered 7301.36 t of kimberlite, which produced 318.98 carats. The four largest diamonds recovered from Orion North are 7.53, 6.89, 3.00, and 2.86 carats,

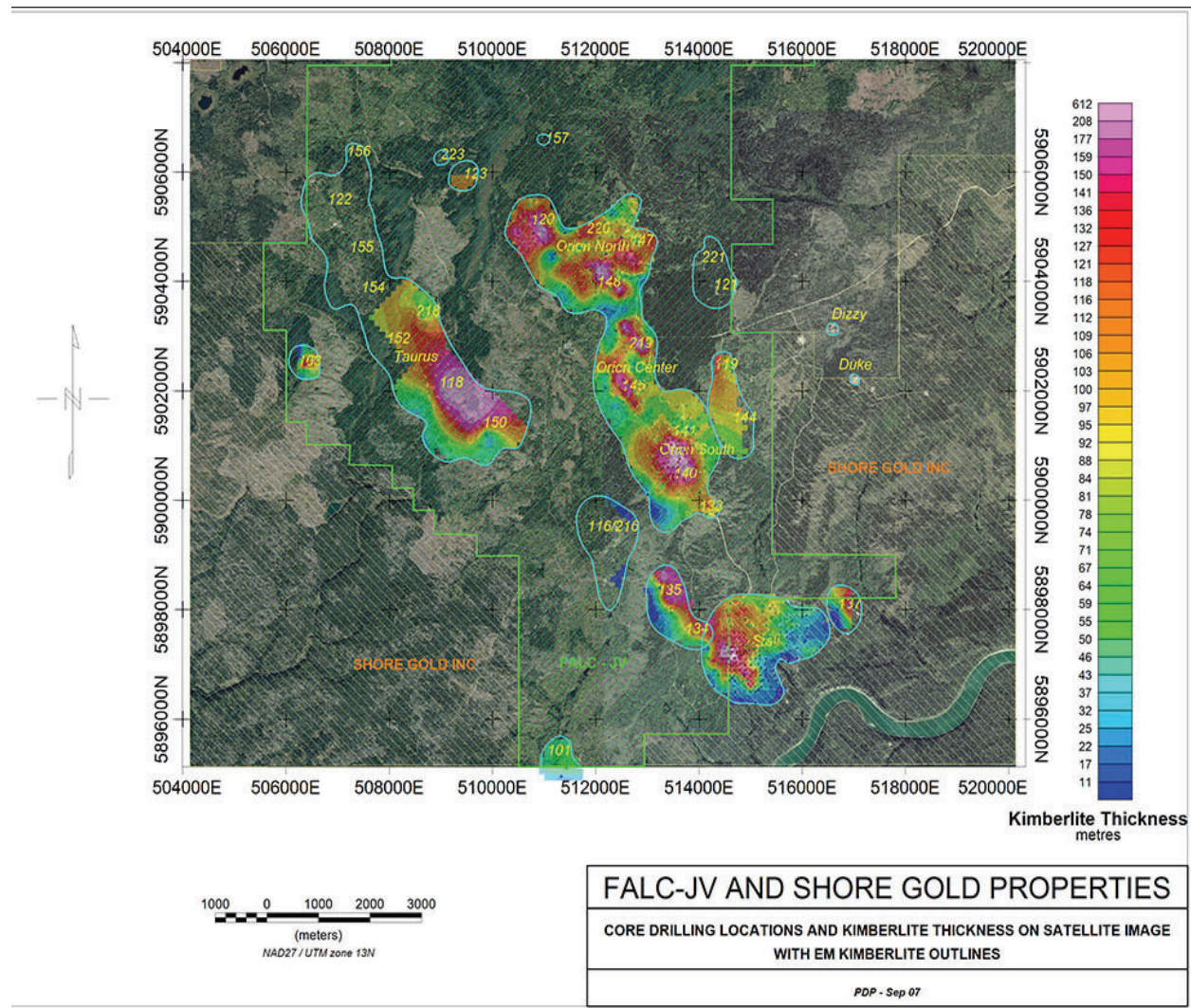


Figure 9 - Star Kimberlite, Orion, and Taurus kimberlite clusters. Image courtesy of Shore Gold Inc.

respectively. The LDD results indicate that kimberlite 120 and the central part of the 147/148 kimberlite complexes are areas of high interest within Orion North. A total of 71 core holes, totalling nearly 16 km, have been drilled into Orion Centre, intersecting 5259 m of kimberlite. The Orion South portion of the cluster has been tested with 129 drill holes, which interested 14 800 m of kimberlite. As of March 4, 2008, 28 LDD holes had been sunk into Orion South, recovering dominantly EJF kimberlite material, which produced an average grade of 10 cpht from the 1949 t of kimberlite that were tested.

The Orion South cluster results were encouraging enough to prompt the FalC JV to conduct a large UGBS program. Sinking of the shaft for the UGBS began in July 2007 and, by May 2008, the shaft had been completed to the target depth of 211 m below surface, and lateral drifting had begun. The majority of the kimberlite recovered during excavation of the shaft was, fine-grained, ash-rich, Pense-aged volcaniclastic kimberlite. The fine-grained Pense material was overlain by a higher grade, coarser Joli Fou-aged kimberlite. Drifting on the 185 m (below surface) has predominantly intersected Pense kimberlite with lesser tonnages of EJF being recovered. Drift headings have started into primary EJF zones and, as such, should start recovering larger tonnages of EJF material. Results from the EJF kimberlite to date are encouraging, with 3278.99 t yielding 573.95 carats for an average grade of 17.50 cpht, while a total of 474.93 carats have been recovered from the 10 136.53 t of Pense-aged kimberlite, for an average grade of 4.69 cpht. The four largest stones recovered from Orion South UGBS are: 45.95, 15.88, 15.86, and 8.29 carats. The lower grades of the fine-grained Pense material were not unexpected, but were necessary, as the shaft location was strategically situated to facilitate drifting to the northwest and southeast into the primary thick zones of EJF kimberlite. Large-diameter drilling on Orion South in 2008 included the completion of 29 holes for a total of 6900 m.

The FalC JV has also begun exploring the Taurus kimberlite cluster (Figure 9), which it believes to be a 6.3 km-long cluster of contiguous kimberlites. For 2008, the FalC JV has budgeted for five LDD holes (totalling 1125 m) to be drilled on each of the K122, K118, and K150 portions of the cluster. Initial drilling results have confirmed the presence of macro-diamonds, and re-logging of archival core holes has indicated the prospect of potentially large volumes of coarse grained kimberlite.

### **Candle Lake Project**

*Vaaldiam Resources Ltd. (100%)*

Vaaldiam Resources Ltd. (Vaaldiam) is continuing to evaluate the two C29/30 kimberlite pipes in the Candle Lake area. Vaaldiam believes the results from a recent mini-bulk test, conducted on the 70 ha pipe, indicate large stone potential. A total of 370 diamonds (greater than 0.85 mm), were recovered from 632.94 t of kimberlite. The total weight of the recovered diamonds was 13.99 carats, which translates to an average grade of only 2.2 cpht. The two largest diamonds recovered weighed 0.91 and 0.43 carats respectively. In 2008, the company also conducted a 21-core hole delineation drilling program on the body. The program successfully expanded the margins of the pipe and recovered 937 kg of kimberlite for additional micro-diamond testing. Vaaldiam has stated that larger tonnage samples are required to determine a more representative grade and diamond value for the body.

### **Border and Crossroads Properties**

*Goldsource Mines Inc. (100%)*

In April, 2008, Goldsource Mines Inc. (Goldsource) announced that it intended to drill several suspected kimberlite targets that had been identified using a combination of conventional geophysical surveys and proprietary UMSERT methodology. Four holes were drilled on the Crossroads claim block, about 100 km north of Prince Albert. Three of the holes had to be abandoned due to drilling problems, but Goldsource believes the fourth hole adequately tested the horizon that would have contained kimberlite had that been the cause of the airborne anomaly. Two holes were also drilled on the company's Border property, along the Manitoba border just, north of Hudson Bay, Saskatchewan. The two holes intersected several horizons containing marcasite and pyrite mineralization in mudstones, which is believed to be the source of the EM anomaly. While the drilling failed to intersect kimberlite, the company did discover a significant coal seam (see coal section for further details).

Several other companies are actively engaged in diamond exploration at various places throughout Saskatchewan. These programs are mostly at the grassroots stage and include indicator mineral sampling and geophysical surveys.

## **10. INDUSTRIAL MINERALS**

### **OVERVIEW**

It is estimated that \$40.9 M will be spent exploring for industrial minerals and REE in Saskatchewan in 2008, with the majority focused on potash exploration. Industrial minerals are a substantial component of the province's non-renewable resource sector (Figure 3). Industrial minerals have consistently accounted for between 20 to 50%, and up to 80%, of the gross value of provincial mineral production during the past 30 years. Not including coal, the major

products are potash, salt, sodium sulphate, meta-kaolin, silica sand, and aggregate, with lesser production in structural clay, clinker (a naturally fired brick made from mudstone), and bentonite. Industrial minerals highlights in 2008 included: the continuation of the potash staking rush, an unprecedented rush in coal staking across the province, and the commissioning of the province's first meta-kaolin plant and quarry.

## POTASH

### POTASH PRODUCTION

#### OVERVIEW

Potash is the largest mining industry in Saskatchewan, and the third-largest mining industry in Canada. Saskatchewan currently produces one-third of the world's potash supply (Figure 10), and accounts for more than 50% of global reserves (Figure 11). The past ten years have provided the Saskatchewan potash industry with its most sustained period of profitability in its history, and the industry appears headed for a period of unprecedented growth. In 2007, total potash production for the province increased to a record high 16.95 M t KCl, a 27% increase above 2006 production levels. The value of potash sales also increased from \$2.2 B in 2006, to a record \$3.1 B in 2007. Potash sales accounted for approximately 71% of Saskatchewan's total mineral sales in 2007. The improved industry performance can be attributed to significant demand increases in Asia and Latin America. Canpotex, the company responsible for all overseas sales of Saskatchewan potash, has reported that value of potash sales to southeast Asia and Latin America are up ~40% to ~US\$750/t, to India up ~130% to US\$625/t, and to China up ~300% to US\$576/t, all in the past year. Both production and sales for 2008 are expected to exceed the record setting levels of 2007.

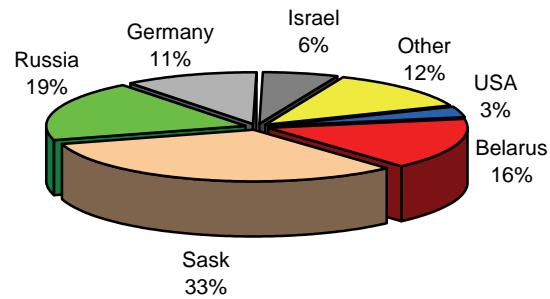


Figure 10 - 2007 estimated global potash production (based on data from the United States Geological Survey).

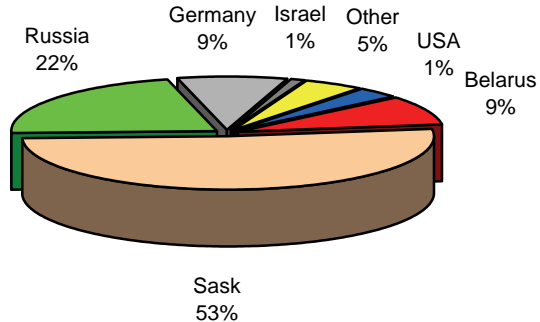


Figure 11 - 2007 estimated global potash reserves (based on data from the United States Geological Survey).

Since the early 1970s, the potash industry in Saskatchewan has remained relatively unchanged, with ten producing potash mines being operated by three major companies. Potash Corporation of Saskatchewan Inc. (PotashCorp), The Mosaic Company (Mosaic), and Agrium Inc. (Agrium) have a collective annual production capacity of over 23 M t KCl, and currently supply one-third of the world's potash. Traditionally, Saskatchewan potash producers have operated their facilities well below capacity and at levels commensurate with fluctuations in global potash demand. Driven by increasing populations in developing nations and biofuels incentives in North America and Europe, the global demand for potash is forecast to rise 3 to 4% percent annually. This equates to approximately 2.00 M t KCl annually; the equivalent of one new potash mine each year. This staggering anticipated demand increase has prompted Saskatchewan potash producers to expand and upgrade their current production capabilities.

Including recently completed upgrades, the three producing companies have plans to invest approximately \$8.4 B, to expand Saskatchewan's production capacity by 15.44 M t KCl, by 2020 (Table 6). Once these expansions are completed, Saskatchewan will have a total production capacity of about 36.3 M t KCl, a 74% increase over 2004 production capabilities. Table 7 shows the recent annual production of each mine and their anticipated production capacities for 2008.

#### Potash Corporation of Saskatchewan Inc.

PotashCorp is Saskatchewan's largest potash producer. In Saskatchewan, it owns and operates conventional potash mines at Cory, Lanigan, Rocanville, and Allan, and solution mine at Patience Lake. It also has a portion of the mineral rights at Esterhazy, which are currently mined by Mosaic under a Limited Partnership agreement. In 2005, an expansion was completed at Rocanville which added 0.75 million tonnes KCl capacity and in 2007 a project was completed at Allan which added 0.41 M t KCl production capability. In 2008, PotashCorp completed construction on a \$410 M project at Lanigan to add 1.5 M t annual production capability and at Patience Lake, the company is completing a \$110 M project to increase annual production by 360,000 t. PotashCorp has announced new plans for capacity additions at its Cory, Allan, and Rocanville facilities; investing a further \$4.26 B to add 5.9 M t KCl to its annual operational capacity. Construction is expected to be completed on these projects by the end of 2012 (Table 6).

**Table 6 - Saskatchewan potash mines – announced expansion plans.**

Mine	Expansion (tonnes KCl)	Estimated Capital Cost	Completion Date
CS Rocanville	750 000	\$130,000,000	2005
Agrium Vanscoy	310 000	\$83,000,000	2006
Mosaic Esterhazy (K-1/K-2)	1 116 000	\$38,000,000	2006
PCS Allan	400 000	\$210,000,000	2007
PCS Lanigan	1 500 000	\$410,000,000	2008
PCS Patience Lake	360 000	\$110,000,000	2008
PCS Cory	1 200 000	\$890,000,000	2110
Mosaic Colonsay	300 000	\$30,000,000	2009
Mosaic Belle Plaine 1st expansion	100 000	\$20,000,000	2010
Mosaic Belle Plaine 2nd expansion	400 000	\$100,000,000	2012
PCS Rocanville	2 000 000	\$1,800,000,000	2012
PCS Allan	1 000 000	\$350,000,000	2012
PCS Cory	1 000 000	\$220,000,000	2012
PCS Rocanville	700 000	\$1,000,000,000	2014
Mosaic Esterhazy (K-1/K-2)	900 000	\$700,000,000	2012
Mosaic Colonsay	1 000 000	\$500,000,000	2013 to 2016
Mosaic Belle Plaine 3rd expansion	1 500 000	\$800,000,000	2014 to 2017
Mosaic Esterhazy (K-1/K-2)	900 000	\$1,000,000,000	2020
<b>Total</b>	<b>15 436 000</b>	<b>\$8,391,000,000</b>	

**The Mosaic Company**

In May of 2007, The Mosaic Company completed an expansion and upgrade of the province’s largest potash operation (K-1/K-2) at Esterhazy, Saskatchewan. These interconnected conventional underground mines now have a combined annual production capacity of approximately 5.30 M t KCl (Table 7). When combined with Mosaic’s underground mine at Colonsay and their solution potash mine at Belle Plaine, the company’s facilities have a total annual production capacity of approximately 9.90 M t KCl. Currently, PotashCorp can elect to take up to 1.3 M t KCl from the Esterhazy production, through a limited mineral rights partnership agreement. Mosaic has announced plans for several rounds of expansion at its facilities, including two expansions at Colonsay, two at Esterhazy, and three at Belle Plaine (Table 6). In total, the

company intends to invest approximately \$3.15 B for the upgrades, which should add about 5.1 M t of additional capacity by 2020. Once completed these expansions would represent a 74% increase over Mosaic’s 2004 production capabilities.

**Agrium Inc.**

Agrium’s lone potash operation in the province is a conventional underground potash mine at Vanscoy. In late 2006, Agrium increased the production capacity at Vanscoy from 1.74 M t to 2.05 M t KCl. This upgrade represents an 18% increase in the annual capacity of the facility. Agrium is currently investigating the feasibility of further production upgrades that could increase the capacity at Vanscoy by anywhere from 300 000 to 800 000 t KCl by 2012. Agrium is also considering the development of a new greenfields potash mine at its Leech Lake project area, just south of Yorkton. The company has conducted extensive seismic studies over the area, and has drilled several test wells.

**Table 7 - Saskatchewan potash producing mines annual production capacities (all reported in M t KCl).**

Company	Mine	2004 Production	2005 Production	2006 Production	2007 Production	2008 Capacity
Agrium	Vanscoy	1.70	1.72	1.21	1.73	2.05
Mosaic	Esterhazy (K-1/K-2)*	3.70	4.00	3.40	3.90	5.30
	Belle Plaine	2.50	2.40	2.20	2.20	2.80
	Colonsay	1.40	1.50	1.20	1.30	1.80
PotashCorp	Lanigan	2.03	2.02	1.47	1.91	5.33
	Rocanville	1.83	2.57	1.90	2.65	3.04
	Allan	1.34	1.43	0.99	1.74	1.89
	Cory	0.74	0.83	0.77	0.77	1.36
	Patience Lake	0.24	0.25	0.19	0.26	1.39

\* PotashCorp’s mineral rights at Esterhazy are mined by Mosaic Potash Esterhazy Canada Limited Partnership under a mining and processing agreement. For calendar year 2008, PotashCorp has elected to off-take 1.1 M t KCl from Esterhazy.

## **POTASH EXPLORATION**

### **OVERVIEW**

After 25 years of potash exploration inactivity, Saskatchewan is now in the midst of a potash exploration boom. In 2004, a total of 206 306 ha of land were under disposition for potash in the province. As of November 1, 2008, over 4.3 M ha of land are now under disposition for potash, with an additional 227 760 ha of land awaiting disposition approval.

Aside from the three current producers, there are now over a dozen different companies involved in potash exploration in Saskatchewan. From 2007 to 2008, seismic programs totalling over 20 000 line-km have been applied for over potash dispositions, and over 50 potash test well licenses have been granted to various exploration companies.

### **Jansen Lake Potash Project**

*BHP Billiton*

In July of 2008, BHP Billiton (BHP), the world's largest mining company, announced that it would acquire all remaining shares of joint venture partner Anglo Potash Corp. (Anglo). BHP spent an estimated \$284 M to acquire Anglo's 25% interest in all of the JV's Saskatchewan potash holdings. Although BHP holds potash exploration permits totalling 733 733 ha in several parts of the province, the company's recent exploration activities have been focused on the Jansen Lake project area, located about 20 km east of the Lanigan potash mine. In March 2008, BHP completed a 3778 line-km 3-D seismic survey, over the Jansen project area, which was the largest in the province's history. BHP has applied for 22 well licenses and is currently drilling test holes on the property. The company has also begun Environmental and Socio-Economic baseline studies, and is actively engaged in community consultation and in the acquisition of free hold mineral rights. The two previously completed NI 43-101-compliant technical reports outlined an Indicated Resource of 479 M t K<sub>2</sub>O and an additional Inferred Resources of 981 M t K<sub>2</sub>O.

### **Burr Potash Project**

*Athabasca Potash Inc.*

Athabasca Potash Inc. (API) is continuing to advance its exploration program on the Burr Project area located 25 km northwest of Lanigan. In 2008, API drilled four test wells, to compliment the five wells drilled in 2007, and the five historic wells present on the 32 000 ha project area. Potash intersection widths and assay results from the wells, were combined with information derived from 2-D and 3-D seismic surveys conducted by API, to produce the two NI 43-101-compliant technical reports for the project area. The latest technical report, released in September 2008, outlined Indicated Mineral Resources of 241 M t K<sub>2</sub>O and an additional Inferred Mineral Resource of 183 M t K<sub>2</sub>O for the Lower Patience Lake geologic member. API has initiated the necessary Environmental Baseline and Tailings Management Assessment studies that are required to complete an Environmental Impact Study.

### **Legacy Potash Project**

*Potash One Inc.*

Potash One Inc. (Potash One) is continuing to evaluate its Legacy Project area adjacent to Mosaic's Belle Plaine solution mining lease. Potash One is looking to rejuvenate a solution mining pilot project started by Imperial Oil in the early 1960s at Findlater, Saskatchewan, about 25 km north of the Belle Plaine solution mine. The company utilized vintage seismic reflection surveys and historic drilling information to compile enough data for a NI 43-101-compliant Mineral Resource Estimate for the project area. The report outlined an Indicated Resource of 36.8 M t of K<sub>2</sub>O, with an additional Inferred Resource of 360.4 M t K<sub>2</sub>O, for the Patience Lake and Belle Plaine geologic members. The company has initiated an infill drilling program, and has plans for a more extensive 3-D seismic survey, both of which could help to expand the mineral resource estimate for the property.

### **Darwin Potash Project**

*Kennecott Canada Exploration Inc. (Rio Tinto)*

Kennecott Canada Exploration Inc. (Kennecott), a subsidiary of mining giant Rio Tinto, has started investigating the feasibility of a solution mine at its Darwin Project area, about 40 km east of Regina. Vintage seismic surveys are available over the project area, and Kennecott has begun drilling two exploration holes to confirm the presence and grade of potash in the area. Kennecott may have an advantage in developing a solution mine, as Rio Tinto has gained extensive solution mining experience through its recent development of a potash solution mining operation in Argentina.

Other potash exploration junior companies such as Raytec Metals Corp., Western Potash Corp., Potash North Corp., and Karnalyte Resources Inc. have acquired land and have announced exploration plans. Two other junior potash

explorers Taiji Resources Ltd. and Encanto Potash Corp., are attempting to develop potash deposits in conjunction with Saskatchewan First Nations groups.

## COAL

### COAL PRODUCTION

Coal production in Saskatchewan is exclusive to the extensive lignite deposits of the Tertiary Ravenscrag Formation. Sherritt International Corp. (Sherritt) operates three coal mines in southern Saskatchewan (Figure 12). Sherritt reported that in 2007, the Poplar River (3.4 M t), Boundary Dam (5.9 M t), and Bienfait (1.0 M t) coal mines produced a collective 10.3 M t of coal. The majority of the coal produced in the province is consumed by SaskPower at its thermal power generating stations.

### COAL EXPLORATION

#### Durango Coal Deposit

*Goldsource Mines Inc. (100%)*

In April 2008, Goldsource Mines Inc. (Goldsource) reported discovering coal while drilling for kimberlite on its Border property claim block in east-central Sask. The two discovery holes were drilled 1.64 km apart, and intersected over 22 m of continuous coal, at a depth of about 80 m. Analytical testing showed the coal to have an average calorific value of 21 megajoules/kg or (9,200 BTU/lb), which ranks this coal as sub-bituminous grade. Goldsource has since drilled an additional nine holes around the deposit, with intersections ranging from 0 to 40 m (Figure 13). The company announced plans for an extensive delineation drilling program that could see as many as 300 holes drilled over the next 18 months.

The excitement surrounding the Goldsource discovery has initiated a coal staking rush that started in the Hudson Bay area and moved northwest across the province to the Alberta border. The Ministry of Energy and Resources Mines Branch has received over 7,000 coal permit applications, which cover approximately 5.4 M ha of land.

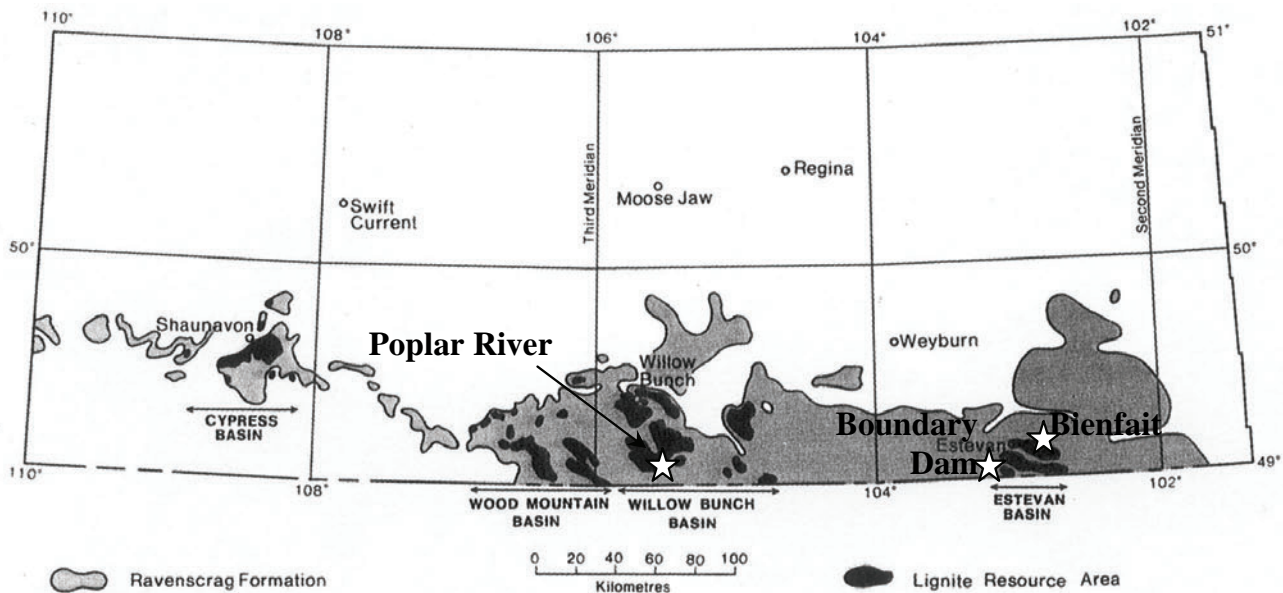


Figure 12 - Location of Saskatchewan coal mines.

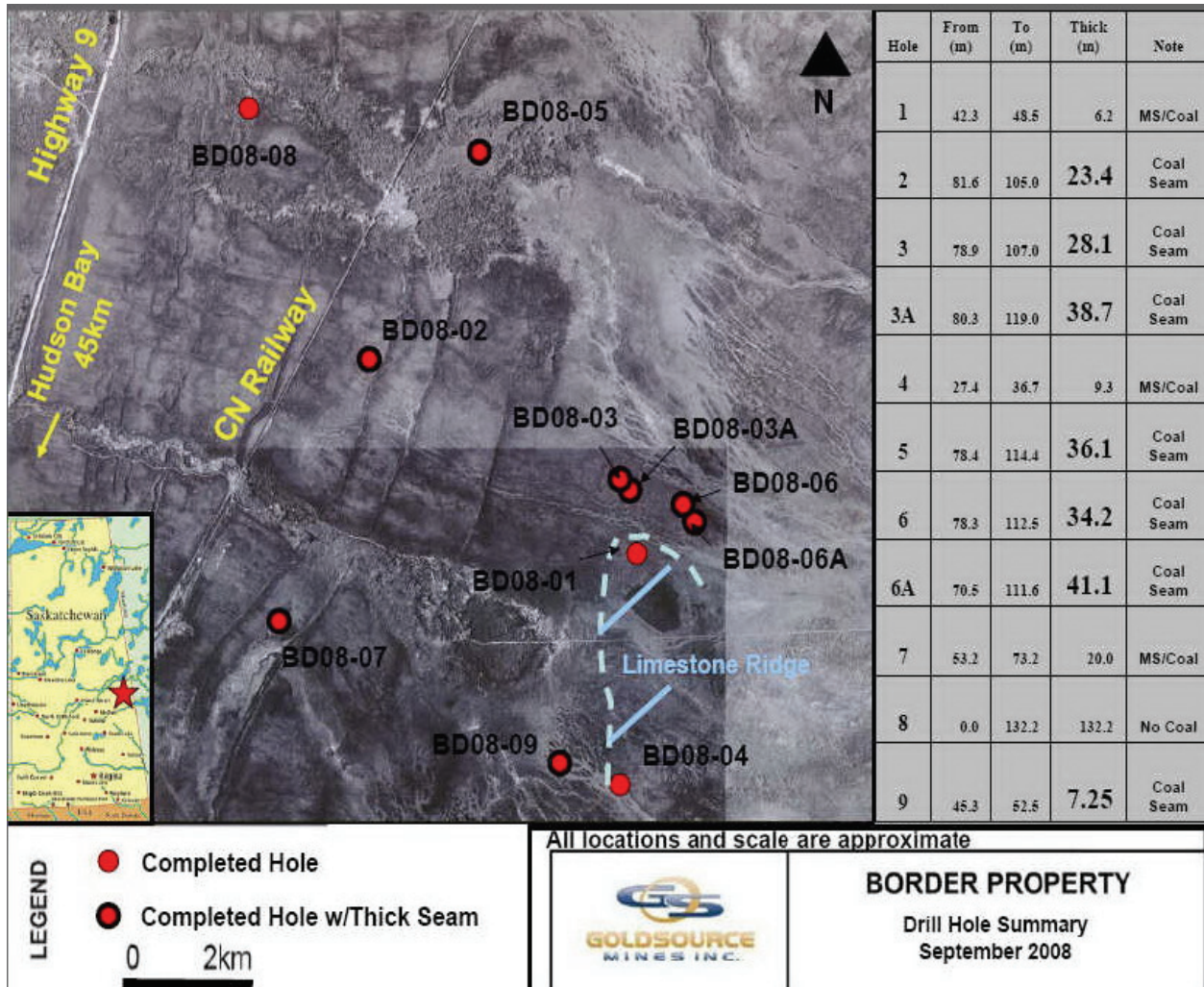


Figure 13 - Goldsource drilling results on Durango coal seam. Courtesy of Goldsource Mines Inc.

## KAOLIN

### Gollier Creek Kaolin Mine

Whitemud Resources Inc. (100%)

In August, 2008, Whitemud Resources Inc. (Whitemud), held a grand opening for its newly constructed meta-kaolin plant and quarry at its Gollier Creek kaolin deposit, near Wood Mountain. The company is producing meta-kaolin to be used as a cement substitute in concrete products. Concrete produced with meta-kaolin has been shown to have greater strength, durability, and resistance to chemical attacks than traditional cements. The company has also identified other potential western Canadian markets for kaolin in fibreglass, rubber, plastics, and as a raw ingredient for ceramic proppant media and roofing shingle granules.

Whitemud conducted an extensive exploration drill program in 2007, which resulted in a revised mineral inventory with a 65% net increase to Indicated and Measured Resources on the Gollier Creek Lease block. The company now has Proven Reserves of 52.9 M t of ore. Measured and Indicated Resources are 131.1 and 28.2 M t, respectively. Whitemud conservatively estimates a mine life of approximately 25 years.

Currently the plant has the capacity to produce 175 000 t of meta-kaolin annually, with room to quadruple in size, should industry demand warrant expansions. The plant experienced some delays and problems during start up at the beginning of the year, but recent upgrades to the rotary kiln should increase the plants reliability and productivity.



Whitemud has shipped product to 19 customers for initial testing, and has commitments from an additional 21 companies to evaluate the product. Whitemud's product has been approved for use by the Oregon Department of Transportation, and in August the Saskatchewan Minister of Highways and Infrastructure announced the province will be using Whitemud product in upcoming major provincial highway projects.

*Figure 14 - Gollier Creek Mine of Whitemud Resources Inc., looking southwest across the initial overburden excavation in the West Pit towards the processing plant. Primary crusher is on the right; product storage dome and loadout on the left. Photo courtesy of Ron Olchowski.*

## 11. REFERENCES

- AMEC (2008): Shore Gold Inc., Star Diamond Project, Fort à la Corne, Saskatchewan, Canada, NI 43-101 Technical Report., Report No.149018, 9 June 2008, 196p.
- Bennett, R.W. (2006): Saskatchewan Mineral Deposits Index; Sask. Industry Resources, Misc. Rep. 2006-6, CD-ROM, ver. 1.0.0.
- Saskatchewan Geological Survey (2003): Geology, Mineral and Petroleum Resources of Saskatchewan; Sask. Industry Resources, Misc. Rep. 2003-7, 173p.
- Slimmon, W.L. (2008): Geological Atlas of Saskatchewan; Sask. Ministry of Energy and Resources, CD-ROM, ver. 11.

# MINERAL RESOURCE MAP OF SASKATCHEWAN

## Exploration and Development Highlights 2008

KEY TO NUMBERED MINES AND DEPOSITS

