

# Report on mineral activities in Québec



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Québec



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# **2009**

## **DISCLAIMER**

The data compiled in this report come from several sources, including questionnaires addressed to prospectors, to directors of regional First Nations and Inuit exploration funds, and to representatives of mining and exploration companies, as well as from their press releases. The accuracy and reliability of this information depend solely on these sources.

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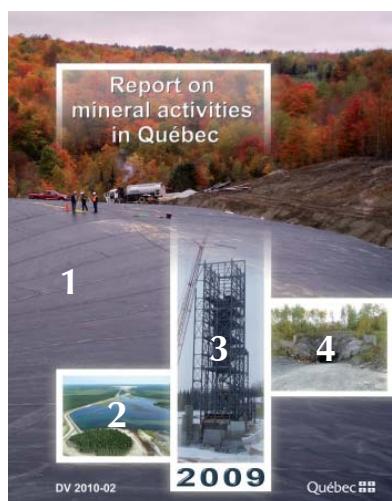
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**Photographs**

- 1 Rehabilitation of the Eustis Mining Complex, Eastern townships, Autumn 2009.
- 2 Rehabilitation of the Manitou Mining Site in Abitibi-Témiscamingue, Autumn 2009.
- 3 Headframe of **IAMGOLD-Québec Management Inc.**’s exploration shaft for the Westwood gold project. *Photograph courtesy of Groupe MISA.*
- 4 Exploration ramp portal of **Alexis Minerals Corporation**’s lac Pelletier gold project. *Photograph courtesy of Alexis Minerals Corporation*

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# HIGHLIGHTS

## Mineral Strategy Unveiled

Jean Désilets

The Minister for Natural Resources and Wildlife, Mr. Serge Simard, proceeded on June 29, 2009 with the unveiling of Québec's first Mineral Strategy. This strategy is based on three major policy directions:

- Creating wealth for Québec and preparing the future of Québec's mineral sector;
- Ensuring environment-friendly mineral development;
- Fostering integrated, community-related mineral development.

With this first mineral strategy, Québec proposes measures, new social and environmental requirements, and framework initiatives in order to prepare the future of its mining sector. This strategy will contribute in maintaining Québec's position among industry leaders. It is but one of the government's actions aimed at developing a new economic space by namely stepping up the pace of mining development in Québec's North.

The reassessment of the mining duties regime, as well as the creation of the Mining Heritage Fund to accelerate knowledge acquisition on the mineral potential of Québec's regions, are some of the measures proposed in the strategy. Other initiatives aim to promote balanced land use and guarantee mine site rehabilitation. Specifically, the financial guarantees required to cover estimated costs in the rehabilitation plan will be increased from 70% to 100%, and the scope of financial guarantees will be extended to cover more than just tailings accumulation areas.

The strategy also aims to enhance education and training opportunities, promote employment in the mineral sector, and support worker adaptation. The participation of local and native communities to mineral development will also be encouraged.

The full text of Québec's Mineral Strategy, Preparing the Future of Québec's Mineral Sector, is available at the following address: [www.QuebecMining.gouv.qc.ca](http://www.QuebecMining.gouv.qc.ca).

## Metal Markets

Louis Marcoux and James Moorhead

The upward cycle in the price of base and precious metals, which began in 2003, came to an end in 2008. The global economic crisis led to a severe drop in metal prices. In December

2008, base metals (Cu, Ni, Zn) reached their floor price and have begun to recover since the start of 2009.

The price of gold reached a record high of US\$1,217/ounce on December 12, 2009.

Iron ore prices are set annually in the spring, between the main producers of iron ore concentrate (RioTinto, BHP Billiton, Vale) and the main consumers (Japanese and Chinese steel manufacturers). The remaining participants in the iron ore market follow these benchmark agreements. Negotiations in the spring of 2009 led to a 33% drop in the price of concentrate relative to 2008. Similarly, the price of iron pellets fell by nearly 50% relative to 2008. Prices for iron ore products (concentrate and pellets) are expected to rise about 10% in 2010.

## Mineral Exploration

James Moorhead, Raymond Beullac, Pierre Doucet, Patrick Houle, Louis Madore and Suzie Nantel

Over the past six years, Québec has benefited from a very favourable investment climate for mineral exploration. As of December 31, 2009, 202 295 active exploration mining titles were recorded throughout Québec, covering a total surface area of 9.2 million hectares. Based on data from the *Institut de la statistique du Québec*, exploration and deposit appraisal expenditures in Québec remained above the \$200M mark in each of the last five years (Table 1.1): \$227M in 2004, \$205M in 2005, \$295M in 2006, \$476M in 2007, and \$526M in 2008.

In April 2008, revised intentions for 2008 suggested exploration and deposit appraisal expenditures would reach \$571M. This enthusiasm saturated in June however, with the drop of most metal prices except gold, and the global economic crisis.

**TABLE 1.1 - Exploration and development expenditures in M\$ for Québec.** Source of data: Raymond Beullac of l'*Institut de la statistique du Québec*.

Commodities	2004	2005	2006	2007	2008	% of 2008
Precious metals	135	115,6	145,4	225,9	263,3	50,0
Base metals	57	53	70,8	118,3	122,4	23,3
Diamond	28	22,8	29	26,9	12,8	2,4
Ferrous metals	0,3	1,4	22,2	29,2	23,5	4,5
Uranium	1,4	4,3	22	70,9	87,3	16,6
Others	5,5	8	5,7	5,1	16,8	3,2
Total (M\$)	227,2	205,1	295,1	476,3	526,1	100,0

In 2008: 1.3 M \$ expenditures for rare earth elements and 0.3 M \$ for lithium exploration.

% change 2007-08: 10,5

Nevertheless, expenditures for 2008 reached \$526M. For 2009, revised intentions have dropped to \$244M, despite an upturn in the price of several metals, namely gold and copper.

According to the results of the 2008 annual survey, 213 mining establishments reported performing exploration or deposit appraisal work in Québec as project manager: 20 major companies (\$111M) and 190 junior companies (\$411M) (including State-owned corporations (\$4M)). Among junior companies, 47% are based in Québec, 22% in British Columbia, 20% in Ontario, and 11% elsewhere in Canada and abroad.

In 2008, exploration and deposit appraisal activities were largely focused on precious metals, primarily gold (\$263.3M, 50.0%), base metals (\$122.4M, 23.3%), uranium (\$87.3M, 16.6%), ferrous metals (\$23.5M, 4.5%) and diamond (\$12.8M, 2.4%). The last bull cycle, from 2004 to 2008, was characterized by a spectacular increase in exploration spending for uranium (from \$1.4M to \$87.3M) and ferrous metals (from \$0.3M to \$23.5M). In 2008, exploration for other commodities rose significantly, particularly for rare earth elements (REE) (\$1.3M) and lithium (\$0.3M). Applications for these commodities in high-technology products and rechargeable car batteries, among others, as well as China's decision to restrict its REE exports, explain this increased interest.

## GOLD

Northeast of Opinaca Reservoir, **Les Mines Opinaca**, a wholly owned subsidiary of **Goldcorp**, continued drilling in order to improve the continuity of mineralized zones and strengthen confidence in the 3D model for the Roberto system. Drill hole ELE-09-00639-W03, in the Bay area, yielded 198.0 g/t Au over 1.5 m. **Eastmain Resources** continued definition drilling on the 450 West zone of the Eau Claire deposit, Clearwater property. Multiple high-grade quartz-tourmaline veins were intersected, including several intervals at more than one ounce per ton, generally associated with tellurium and bismuth concentrations.

On the Aquilon Main property, at the eastern end of the La Grande area, **Golden Tag Resources** and **Sirios Resources** reported several drill intercepts with more than one ounce of gold per ton in the Lingo vein, following a series of vertical holes less than 100 metres deep drilled over a strike length of 40 metres.

About 50 km northwest of Schefferville, **Western Troy Capital Resources** reported new gold and base metal values in iron formations on its Schefferville Gold property. Hole no.4 yielded 5.56 g/t Au over 11.0 m, including 10.24 g/t Au over 2.03 m, and 8.56% Pb, 1.96% Zn, and 27.67 g/t Ag over 3.05 m.

At the Casa Berardi mine north of La Sarre, **Aurizon Mines** conducted drilling from an exploration drift on level 810 m to explore the extensions of zones 118-120. Best results include

16.8 g/t Au over 5.3 m (drill hole CBP-0057) in auriferous quartz veins.

At the Barry open pit mine located east of Lebel-sur-Quévillon, **Metanor Resources** intersected gold-bearing intervals in drill holes along the extensions of the Main zone. Drill hole MB-09-270 intersected a wide gold interval (4.86 g/t Au over 27.0 m) to the south, between the Main zone and the West zone. Further north on the Nelligan property near Desmaraisville, **Metanor Resources** and **Murgor Resources** intersected in drill hole a new near-surface gold showing (28.06 g/t Au over 4.54 m, drill hole NE-09-02). West of Lebel-sur-Quévillon on the Comtois property, **Maudore Minerals** reported high-grade drilling results (20.0 g/t Au over 4.5 m, drill hole 273).

Near Rouyn-Noranda, **Yorbeau Resources** reported drill results from its Rouyn property. Drill hole 09-CI-519 encountered intervals grading 12.6 g/t Au over 4.0 m and 74.67 g/t Au over 10.35 m. **Alexis Minerals Corporation** obtained positive results from the pre-feasibility study on its Lac Pelletier gold project. Underground workings were dewatered in order to collect a 40,000-tonne bulk sample. The company expects to achieve commercial production in 2010. **Richmont Mines** launched an exploration program at its Francoeur project, located west of Rouyn-Noranda, where a probable reserve of 615,664 t at 6.91 g/t Au has been defined. Dewatering of workings at the former mine should be completed in the first quarter of 2010 and production is slated to begin in 2011. **Aurizon Mines** received a positive pre-feasibility study on its Joanna project, located 20 km east of Rouyn-Noranda. The deposit contains 33.8 Mt of measured and indicated resources at a grade of 1.4 g/t Au and an inferred resource estimated at 28.4 Mt grading 1.4 g/t Au. The company launched a feasibility study on the project. **Clifton Star Resources** completed a series of drill holes on its Beattie, Duquesne and Donchester properties located near Duparquet, north of Rouyn-Noranda. Drill results on these three projects include: 17.0 m at 7.00 g/t Au in drill hole B09-32 (Beattie), 8.2 m at 9.04 g/t Au in drill hole DQ09-09 (Duquesne), and 4.7 m at 4.19 g/t Au in drill hole D09-3 (Donchester).

West of Cadillac, **IAMGOLD-Québec Management** advanced construction of infrastructure on the Westwood project, located east of the Doyon mine. Inferred resources on this project are estimated at 9.4 Mt grading 11.4 g/t Au. On its LaRonde Extension project, **Agnico-Eagle Mines** continued sinking of the internal shaft to its final depth at 2,854 metres, to be reached in the fourth quarter of 2009. The company also launched a drilling program targeting the extensions of the Westwood deposit on its Ellison property, located just east of Westwood.

In Malartic, east of the Canadian Malartic open pit mine development project (reserves of 183.3 Mt at 1.07 g/t Au), **Osisko Mining Corporation** reported a resource estimate on

its South Barnat project (measured and indicated resources: 29.0 Mt at 2.09 g/t Au) and drill results in the Jeffrey zone (1.2 g/t Au over 86.9 m, drill hole CHL08-2063) with partner **Golden Valley Mines**.

Further east toward Val-d'Or, on its Malartic-Midway property, **Northern Star Mining Corporation** continued development of an exploration decline to reach the Chabela and Briar gold zones. **NioGold Mining Corporation** encountered a section grading 4.52 g/t Au over 3.6 m (drill hole MB-09-270) in the Norbenite shear zone. About 3 km east of the Kiena mine, **Wesdome Gold Mines** obtained gold grades in drill holes in the Dubuisson zone (10.3 m at 26.1 g/t Au, drill hole S552), discovered in 2008. On the Wesdome project, located 4 km north of the Kiena mine, inferred resources are estimated at 1,563,300 t at a grade of 7.97 g/t Au and indicated resources at 275,800 t grading 7.73 g/t Au. East of Val-d'Or, new measured and indicated resource estimates were calculated on various projects, namely:

- 6.5 Mt grading 5.02 g/t Au at Lamaque (**Century Mining Corporation**);
- 4.6 Mt grading 1.82 g/t Au at Orenada (**Alexandria Minerals Corporation**);
- 0.23 Mt grading 4.17 g/t Au at Nordeau West (**Plato Gold Corporation/Globex Mining Enterprises**);
- 0.81 Mt grading 9.11 g/t Au at Croinor (**First Gold Exploration/X-Ore Resources**).

Based on recent drilling at the Lac Herbin mine by **Alexis Minerals Corporation**, reserves have nearly doubled to 0.61 Mt at 7.36 g/t Au and are now sufficient for 5 years of production. On the Sleepy property, **Alexandria Minerals Corporation** established an inferred resource of 1.56 Mt at a grade of 3.0 g/t Au.

In the Témiscamingue region near Belleterre, **Conway Resources** released the results of mineralogical tests on the Conway and Paquin veins, Conway-Paquin project. A sample weighing 527.7 kg from the Conway vein yielded an average grade of 18.6 g/t Au and 69.4 g/t Ag. In November, the company announced plans to collect a 3,000-kg sample from the two veins.

In the Chaudière-Appalaches region, **Golden Hope Mines** continued mineral exploration work on its Bellechasse property, which hosts the Timmins gold deposit, composed of quartz-carbonate-sulphide veins in a gabbro unit. The 2008 drilling program yielded gold-bearing intervals at the Timmins deposit, namely: 4.35 g/t over 6 m, 3.48 g/t over 8 m, and 3.42 g/t over 4 m.

## BASE METALS (COPPER, ZINC)

In the Chibougamau area, recent drilling by **Cogitore Resources** on its Scott Lake property led to a new inferred resource estimate of 3.6 Mt at 1.1% Cu, 5.2% Zn, 0.3 g/t Au and 36 g/t Ag. Further west in Matagami, on the Bracemac and McLeod zones discovered in 2007, **Donner Metals** and **Xstrata Zinc Canada** conducted definition drilling within the scope of the feasibility study for the Bracemac-McLeod project. Indicated resources for this deposit are currently estimated at 3,623,000 t grading 11.52% Zn, 1.6% Cu, 31.55 g/t Ag, and 0.49 g/t Au.

In the northern Outaouais region, northeast of Cabonga Reservoir, **Cartier Resources** reported a grade of 1.0% Cu over 6 m from channel samples collected on its newly acquired Doré property. Copper mineralization is associated with a sulphide-rich horizon that marks the contact between the Bouchette gabbro-anorthosite layered intrusion and metasedimentary rocks of the Grenville Province.

## NICKEL, COPPER, COBALT, AND PLATINUM GROUP ELEMENTS (PGE)

In northernmost Québec, definition drilling continued in the Cape Smith Belt. About 20 km south of the Raglan mine on the Nunavik Nickel project, **Canadian Royalties** (now **Jien Canada Mining**) released new indicated resource estimates for the Allammaq deposit (3,671,000 t at 0.90% Ni, 1.12% Cu, 0.04% Co, 0.50 g/t Pt, 2.18 g/t Pd, and 0.10 g/t Au) and the Puimajuq deposit (209,000 t at 1.64% Ni, 2.73% Cu, 0.06% Co, 0.92 g/t Pt, 2.48 g/t Pd, and 0.09 g/t Au). About 80 km southeast of the Raglan mine, **Goldbrook Ventures** and **Jilin Jien Nickel Industry** continued drilling on the Mystery, Mystery North, Timtu, Delta Northeast, and Dragon zones on their Raglan property. Drill hole MYS09-003 yielded grades of 0.78% Ni, 1.19% Cu, 0.04% Co, and 4.10 g/t PGE + Au over 95.4 m (Main Mystery zone), and drill hole TIM09-17 encountered a 21.0-m interval grading 0.78% Ni, 0.64% Cu, and 2.45 g/t PGE + Au (Timtu zone).

## IRON

About 30 km south of Radisson, **Augyva Mining Resources** and its partner **Canadian Century Iron Ore Corporation** completed a first-phase drilling program on deposits 1, 2, 3, 4, and 5 on the Duncan project. Best results include an interval grading 25.45% Fe over 226.46 m in hole 33, and another in hole 52 grading 26.79% Fe over 130.91 m. On the Iron-T property located just east of Matagami, **Apella Resources** confirmed in drill hole the layered zone enriched in iron, vanadium, and titanium in the Bell River Complex. About 28 km southeast of Chibougamau, **Apella Resources** also confirmed in drill hole the northeast extension of the Lac Doré iron-vanadium-titanium deposit on its Lac Doré North project.

In the Labrador Trough, **Adriana Resources** released an indicated resource estimate of 4.29 billion tonnes grading 29.08% Fe, with an inferred resource of 1.97 billion tonnes at 29.24% Fe for the South zone of the Lac Otelnuk iron ore deposit. Near Schefferville, **New Millennium Capital Corporation** and **Tata Steel Global Minerals Holdings Pte** continued work to complete the feasibility study on the DSO project located along the provincial border between Newfoundland-and-Labrador and Québec.

In the Côte-Nord region, **Consolidated Thompson Iron Mines** completed a new resource estimate for the Bloom Lake development project. Measured and indicated resources stand at 827 Mt grading 29.3% total Fe and inferred resources at 47.2 Mt grading 29.32% total Fe. The start-up of production at the mine, at a rate of 8.0 million tonnes per year, is scheduled for the end of 2009. The same company also released a new resource estimate for the Lamélée and Peppler deposits. The Lamélée deposit contains an indicated resource of 641.72 Mt at a grade of 30.30% total Fe, whereas the Peppler deposit contains an indicated resource of 293 Mt grading 28.46% total Fe. In November, **Champion Minerals** announced a new resource estimate for the Bellechasse and Fire Lake North claim blocks on its Fermont Iron project, located near the namesake town. Based on a cut-off grade of 15% iron, the two claim blocks reportedly contain inferred resources estimated at 503.3 Mt at an average grade of 28.0% iron.

## URANIUM

North of Chibougamau, in the sedimentary Otish Basin, **Strateco Resources** released a new resource estimate, with an indicated resource of 436,000 t grading 0.78%  $\text{U}_3\text{O}_8$  and an inferred resource of 1,157,000 t at 0.50%  $\text{U}_3\text{O}_8$  in the AM-15, MT-22, and MT-34 zones on the Matoush project. The company also filed an environmental impact study for the sinking of an exploration ramp to conduct a feasibility study on the project. On the Hotish property, **Dios Exploration** obtained results from grab samples on the B-1 (0.787%  $\text{U}_3\text{O}_8$ , 0.36% REE, 0.1% Y, 1.5% Zr, 14 g/t Ag, and 0.45% Pb) and Butte (0.15%  $\text{U}_3\text{O}_8$ ) anomalies and on the new Godzila showing (2.56%  $\text{U}_3\text{O}_8$ ). At the northeast end of the sedimentary Otish Basin, **Abitex Resources** completed a drilling program on the “L” deposit (historical resource: 385,000 t at 0.7%  $\text{U}_3\text{O}_8$ ) on the Lavoie project, and discovered a surface showing, dubbed Epsilon-B (grab sample B-02: 3.54%  $\text{U}_3\text{O}_8$ , 46.85 g/t Au, 1.20% Pb and 89.8 g/t Ag) on the Epsilon property.

East of Havre-Saint-Pierre, **Uracan Resources** completed drill holes to test various zones on its North Shore property. A recent resource estimate established a global inferred resource of 40.7 M pounds  $\text{U}_3\text{O}_8$  at an average grade of 0.012%  $\text{U}_3\text{O}_8$  for three zones (Double S, Middle zone, and TJ zone).

## OTHER METALS

On the Strange Lake REE property near Rivière George in the Labrador Trough, **Quest Uranium Corporation** extended the strike length of mineralization along the B-zone to a minimum of 1.1 km. Several drill holes yielded high-grade REE and Y-bearing intervals from 1.05% to 2.52% over vertical thicknesses ranging from 6 to 66 metres.

About 280 km north of Matagami (km 384 on the Route de la Baie-James), **Lithium One** conducted an aggressive drilling program to test about 15 different pegmatite dyke swarms with spodumene (lithium-rich mineral) on the James Bay Lithium property. Several intercepts ranging from 3.0 to 64.0 metres length, with grades from 1.08% to 1.98%  $\text{Li}_2\text{O}$ , were obtained along a 1.2-km-long corridor. About 250 km north of Matagami, **Sirios Resources** and **Dios Exploration** intersected in drill hole several lithium-bearing pegmatite dykes over a 425 metres strike length, including one interval grading 0.97%  $\text{Li}_2\text{O}$  over 21.0 m in drill hole 09-05 on the Pontax-Lithium property.

Several hundred claims were map-designated in the vicinity of the Preissac and La Corne batholiths, where the former Québec Lithium mine is situated. The latter property is being evaluated by **Canada Lithium Corporation**. The results of metallurgical test work by conventional processing of an ore sample yielded a concentrate grading 99.6%  $\text{Li}_2\text{CO}_3$ . Pilot-scale tests are planned in January 2010, to process a 20-tonne bulk sample.

North of Val-d’Or, **Romios Gold Resources** identified extensive zones with molybdenum, bismuth, and lithium mineralization (0.0787%  $\text{MoS}_2$  over 168.3 m, drill hole RQ-08-07) near the former La Corne Molybdenum mine.

On the Anita project in the Lac-Saint-Jean region, about 80 km north of Saint-Félicien, **MDN**, in partnership with **IAMGOLD Corporation** and private investors, is investigating an alternative to mine tantalum-niobium ore hosted in the Crevier Carbonatite from an open pit, over an estimated mine life of 18 years.

On its Lac Washicoutai property, located 72 km east of Natashquan, **Western Troy Capital Resources** collected grab samples from a radioactive zone. Best results include grades up to 489 ppm La, 474 ppm Th, 149 ppm Zr and >1000 ppm Ce.

## DIAMOND

On their property located northeast of Chibougamau, joint venture partners **Stornoway Diamond Corporation** and **SOQUEM** quadrupled the tonnage in the Renard 2 kimberlite following their summer drilling program. Resources on the Renard diamond project are now estimated at 23.0 million carats of indicated mineral resources and 13.3 million carats of inferred mineral resources, based on a diamond valuation of US\$117 per carat.

## **INDUSTRIAL MINERALS**

**Arianne Resources** continued exploration work on its Lac à Paul phosphate-titanium deposit, located some 200 km north of the town of Saguenay, in the north part of the Saguenay–Lac-Saint-Jean anorthositic Complex. Inferred resources are estimated at 304 Mt grading 6.18%  $P_2O_5$  and 7.81%  $TiO_2$ .

**Exploration Orbite V.S.P.A.** continued exploration work on its red clay deposit near Grande-Vallée in the Gaspésie region, to further delineate ore reserves for the deposit.

## **Mineral Production**

*Louis Marcoux, Denis Blackburn,  
and Germain Girard*

Mining activities in Québec reflected the global economic downturn. After the closure of the **Copper Rand** mine and the **Merrill** open pit mine by **Campbell Resources** in late December 2008, **Inmet Mining Corporation** ceased mining operations in the open pits of the **Troilus** mine in April of 2009, due to depleted reserves. Since then, low-grade ore stockpiles are being processed at the mill.

**Wabush Mines** laid off 120 workers at its pellet plant in Pointe-Noire (Sept-Îles) for an undetermined period. **IOC** announced in February it was abandoning its project to restart its pellet plant in Sept-Îles. The plant was initially shut down in 1981.

The **Magusi** project held by **First Metals** and located near Duparquet, was put on stand-by. Mining operations did not resume as planned at the **Langlois** mine held by **Breakwater Resources**, near Lebel-sur-Quévillon. Operations had been interrupted in 2008 following the decline in zinc prices.

**Diarough Canada** announced the closure of its diamond polishing plant in Matane, as a result of the economic crisis and declining retail sales of diamonds.

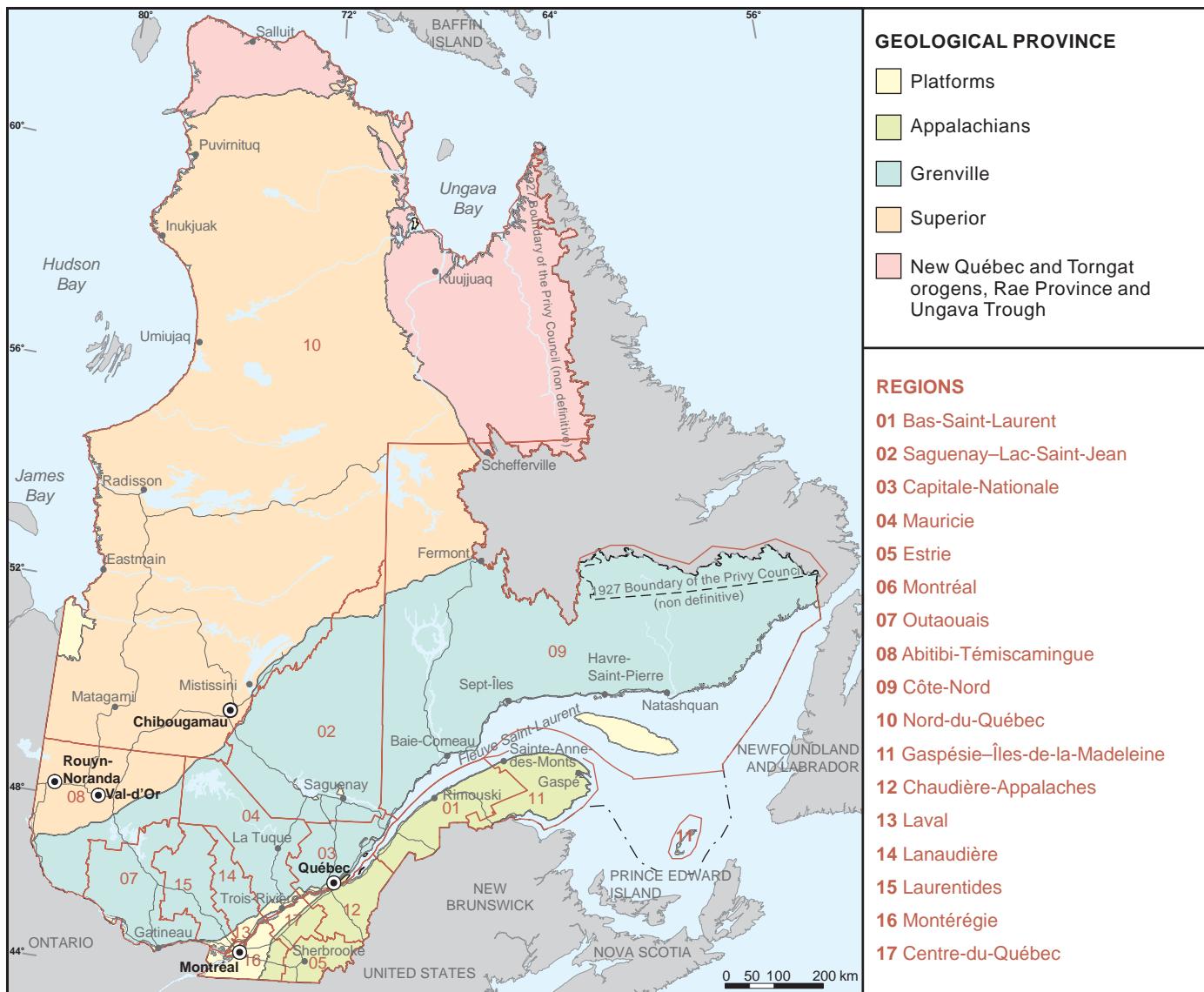
**Agnico-Eagle Mines** began production at the **Lapa** mine near Cadillac. Mining operations are expected to continue until 2015 and produce more than 1.1 M ounces of gold. Also, **Osisko Mining Corporation** obtained in August from the Québec government, a decree authorizing the start of development for an open pit mine in Malartic. Production is slated to begin in 2011 at this deposit, and more than 6 M ounces of gold are expected to be mined over 10 years.

East of Lebel-sur-Quévillon, **Metanor Resources** achieved commercial production on October 1, 2008 at the **Barry** open pit mine, where a near-surface indicated resource of 385,000 t grading 4.23 g/t Au has been established.

**North American Palladium** acquired **Cadiscor Resources** and resumed production at the **Sleeping Giant** (Au-Ag) mine. The first gold pour took place on October 6, 2009.

Further west in Matagami, **Xstrata Zinc Canada** inaugurated in September of 2008 the **Perseverance** (Zn-Cu-Ag-Au) mine.

Production of industrial minerals and construction materials was affected by the economic crisis in 2009. A significant decline in demand for quicklime and hydrated lime was noted, as well as a drop of nearly 60% in the production of clinker from certain cement plants. Strong competition from emerging countries such as China had a direct impact on graphite and silica production. Peat production was severely affected by the rainy summer. Producers completely depleted their reserves accumulated in 2008 to meet demand.



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**Figure 1.1.** Geological subdivisions, administrative area limits, and key persons to contact.

# QUÉBEC'S MINING REGIME

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Roch Gaudreau

## Basic Principles

The mining regime in Québec is based on three principles:

- Free access to the mineral resource, regardless of the applicant's means;
- On a first-come, first-served basis, applicants obtain the exclusive right to search for all mineral substances in the domain of the State;
- Reasonable assurance that mining rights will be granted in the event of a discovery.

The Mining Act is designed to promote prospecting, exploration, and mining of mineral substances, while taking into consideration other possible uses of the land. Mining rights are immoveable real rights, consequently they can be the subject of transactions. Mining rights are distinct from surface rights.

### **EXPLORATION RIGHT**

The claim gives the holder the exclusive right to explore for all mineral substances in the domain of the State. It is valid for a term of two years and is renewable. A claim is granted without any form of discretionary power, when all legislative criteria have been met (application is deemed valid and compliant, no restrictions to mining activity).

### **EXTRACTION RIGHTS**

#### **The mining lease**

A mining lease is required to mine mineral substances other than surface mineral substances. It is valid for a term of 20 years and is renewable every 10 years. To obtain a mining lease, the applicant must:

Submit a report by an engineer or a geologist describing the nature, extent and likely value of the ore deposit;

- Pay the annual rent;
- Submit a surveyed plan of the land;
- Obtain authorization from the surface right holder, if needed;
- Submit a mine site rehabilitation plan and a financial guarantee;
- Obtain a forest work permit, if needed;
- Obtain a certificate of authorization from the Ministère du Développement durable, de l'Environnement et des Parcs (MDDEP);

- Obtain the Minister's authorization (MRNF) for the location of a processing plant and a tailings pond.

#### **Leases to mine surface mineral substances**

- The *exclusive lease* is issued for: consolidated surface mineral substances, for unconsolidated deposits when a guaranteed supply is required for an industrial activity or for the State for public roads or other works.
- The *non-exclusive lease* is issued for unconsolidated deposits (sand, gravel, common clay) to be used for construction purposes.
- An authorization to mine without a lease may be issued for a one-time occurrence, when time constraints are a key issue.

## **Mining Rights**

The number of active exploration mining titles in Québec, as at December 31, 2009, was 202 295, for a total surface area of 8 914 951 hectares. Administrative regions that contain the highest number of exploration mining rights are, in decreasing order: Nord-du-Québec (134 880), Abitibi-Témiscamingue (29 084), and Côte-Nord (17 012; table 2.1). The number of exploitation titles in Québec, as of December 31, 2009, was 3760, including mining leases and leases to mine surface mineral substances. Total active mining titles for Québec amounted to 206 055 as of December 31, 2009 (figure 2.1).

## **Mining Taxation**

Mining taxation in Québec is distinct from that in other provinces and territories, namely with regard to tax incentives designed to stimulate mineral exploration as well as development of new mines. The main tax incentives available to the mining sector are:

- Québec's flow-through share regime, which allows individual investors to claim deductions reaching up to 150% of their investment cost, compared to 100% in other provinces;
- The refundable tax credit for resources, introduced in 2001, that grants companies a refund reaching up to 38.75% of eligible exploration expenditures incurred in Québec; and
- The credit on duties refundable for losses, a unique measure in Canada, introduced in 1985, which allows mining operators to receive a refund for the tax value of certain exploration, deposit appraisal and mine development

investments, as soon as they are incurred. This credit carries a rate of 12%.

## The Mineral Strategy

The government unveiled on June 29, 2009, Québec's Mineral Strategy. This strategy builds upon Québec's strengths such as its mineral potential, its mining policies and the quality of its workforce. It proposes framework initiatives to prepare the future. It was designed in keeping with the directions and priorities of the Québec government's economic development strategy, "The Québec Advantage", as well as the government's position regarding sustainable development for 2008-2013.

The mineral strategy is based on three policy directions:

- Creating wealth and preparing the future of Québec's mineral sector;
- Ensuring environment-friendly mineral development;
- Fostering integrated, community-related mineral development.

From these three policy directions stem priorities for action that will help reach stated objectives. Certain priorities for action, namely those focusing on ensuring environment-friendly mineral development, will involve new practices for both the mining industry and the Ministère des Ressources naturelles et de la Faune (MRNF), requiring legislative and regulatory amendments.

## Bill No. 79 to Amend the Mining Act

Québec's Mineral Strategy proposes actions to prepare the future of the mineral sector. To implement many of these initiatives, legislative amendments are required. To this end, the Minister for Natural Resources and Wildlife introduced, on December 2, 2009, in the National Assembly, Bill No. 79 to amend the Mining Act.

Amendments proposed under bill No. 79 aim to:

### **STIMULATE EXPLORATION WORK ON CLAIMS**

- Limit the duration of work credits to ten years;
- Eliminate the possibility of making a payment instead of performing work, except during the first term of the claim;
- Reduce the surface area over which work credits may be used to renew other claims;
- Eliminate the possibility of using credits from exploration work performed on a mining lease or a mining concession to renew a claim;
- Index and increase work requirements needed to renew a claim (regulatory amendment).

### **GUARANTEE MINE SITE REHABILITATION**

#### **Mineral exploration**

- Increase from 70 to 100% the financial coverage to guarantee rehabilitation work;
- Extend the scope of the financial guarantee to cover more than just tailings accumulation areas;
- Introduce a penalty when financial guarantee instalments are not paid.

#### **Mineral extraction**

- Increase from 70 to 100% the financial coverage to guarantee rehabilitation work;
- Extend the scope of the financial guarantee to cover more than just tailings accumulation areas;
- Review the instalment schedule to accelerate payment of the financial guarantee;
- Provide a 3-year transition period for active mines, followed by complete payment over 5 years;
- Introduce a criminal penalty when financial guarantee instalments are not paid according to schedule;
- Protect rehabilitation and reclamation work performed on accumulation areas;
- Lower the threshold for environmental impact studies from 7,000 to 3,000 metric tonnes;
- Make it mandatory to submit a rehabilitation plan for BAPE hearings and consultations with the community;
- Tighten requirements to obtain a certificate of release once work has been performed as stipulated in the rehabilitation plan.

### **RECONCILE LAND USES**

- Make it possible to take into account other land uses, for example regional planning, to withdraw or reserve to the State;
- Add public interest as a reason to refuse the issuance or renewal of a lease to mine surface mineral substances;
- Make it possible to refuse the issuance of a lease to mine sand and gravel when there are incompatible land uses;
- Refuse an application for a lease to mine surface mineral substances on lands where certain developments are already present;
- Make it mandatory to hold consultations with the community for all mining projects (except for surface mineral substances, but including peat);

- Protect eskers that carry groundwater;
- Surrender surface mineral substances on private lands to landowners;
- Make it mandatory for the claim holder to inform the land owner or lessee that a claim has been issued on his/her private property;
- Make it mandatory to declare the search for uranium upon application for a claim, and make it mandatory to declare a discovery (with regulatory protection measures).

#### **ENRICH QUÉBEC'S GEOLOGICAL KNOWLEDGE HERITAGE**

- Make it mandatory for mining companies to submit to the MRNF all exploration work performed in accordance with exploration credits claimed under the Mining Duties Act.
- When Bill No. 79 to amend the Mining Act was tabled, the Members of Parliament agreed to form a parliamentary committee on this issue in early 2010.

#### **Bill to Amend the Mining Duties Act**

Québec's Mineral Strategy calls for a revision of the mining royalties regime. The purpose of this revision is to ensure Québec receives its fair share of returns on the mining of its non-renewable natural resources, while taking into account transformations that have taken place in the mineral sector in recent years, and the need to maintain the mineral industry's competitiveness. Consequently, the government will re-assess the mining royalties regime while taking into consideration: the competitiveness of companies; maximization of benefits; and a fair return on the mining of its resources.

The MRNF, the Ministère des Finances and the Ministère du Revenu will work closely together, so that a Bill to Amend the Mining Duties Act may be tabled in the fall of 2010.

#### **Delegation of sand and gravel management to MRCs**

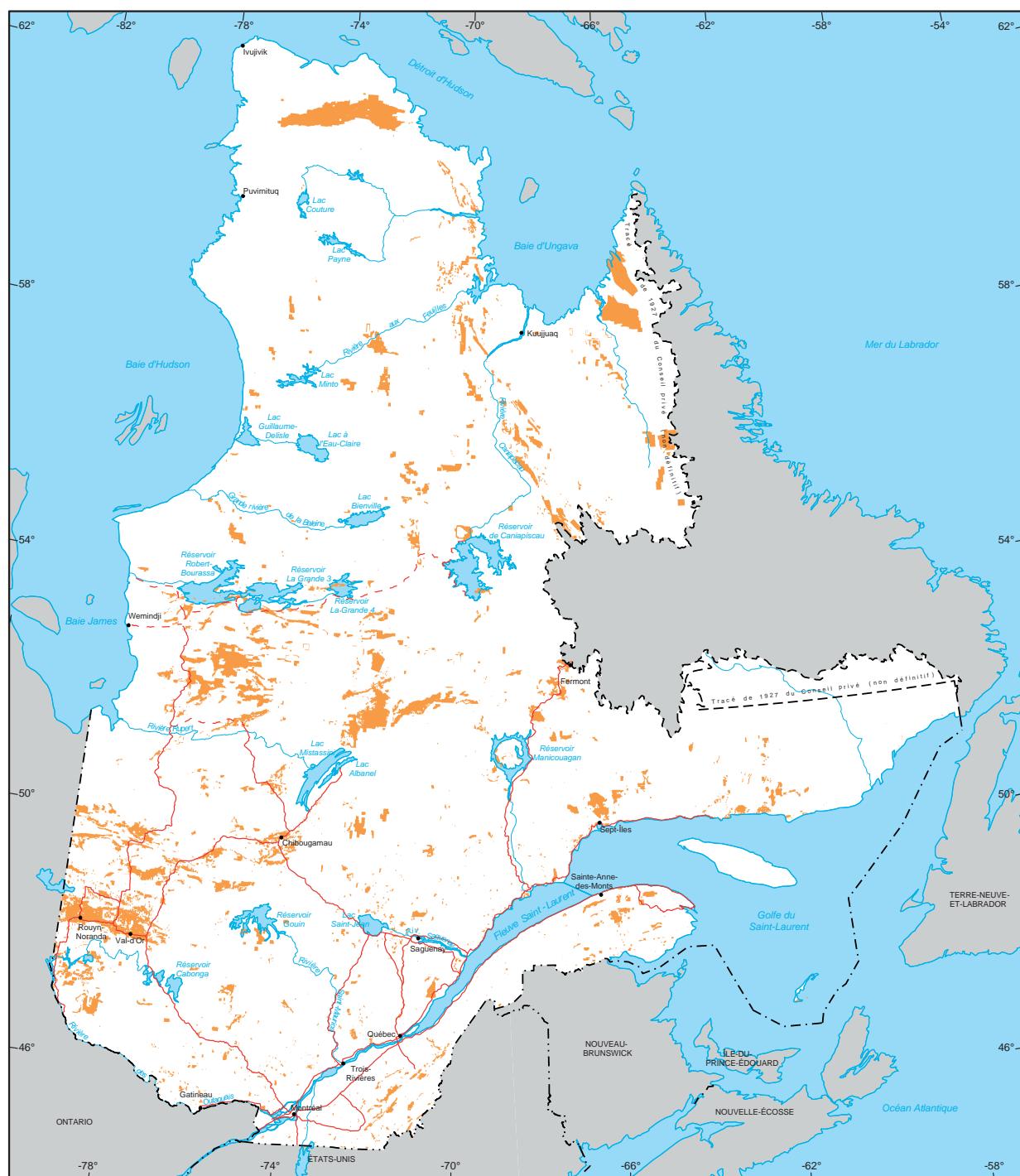
In the fall of 2008, the Cabinet authorized the Minister of Municipal Affairs and Regions and the Minister of Natural Resources and Wildlife to execute an agreement with the *Fédération québécoise des municipalités* (FQM) and the *Union des municipalités du Québec* (UMQ). This agreement is namely designed to delegate to regional county municipalities (MRC) the management of sand and gravel mining on lands in the domain of the State. In June 2009, the Cabinet adopted a decree on the decentralization of sand and gravel management.

The powers and responsibilities to be vested to MRCs with regard to sand and gravel are:

- The granting, renewal, revocation and registration in the Register of real and immovable mining rights, authorizations to mine and leases to mine sand and gravel, as well as the receipt of certificates of authorization in accordance with paragraph 22 of the Environment Quality Act;
- Inspection and monitoring of mining operations for these substances; collection of rental and royalty payments; rehabilitation of sand and gravel pits.

Each year, the MRNF oversees more than 2,700 leases and authorizations to mine sand and gravel. Royalties and rental payments are on the order of \$3.2M per year for all of Québec. Most of this amount comes from MRCs in the Nord-du-Québec, Côte-Nord, Abitibi-Témiscamingue, and Saguenay–Lac-Saint-Jean regions.

In November and December of 2009, MRCs from the Saguenay–Lac-Saint-Jean region signed a memorandum of understanding regarding the transfer of responsibilities, with the takeover set to come into effect on April 1, 2010. Several other administrative regions expressed interest in this project to delegate management. New agreements with other MRCs should be executed over the course of 2010.



Active Titles

Number : 206 055  
Area : 8 981 942 ha

#### Metadata

**Coordinate System**  
Conic Conformal Lambert with  
two standard parallels  
(46° and 60°)

#### Sources

Mining data, MRNF, 2009  
Cartographic Reference, MRNF, 2009  
(BDAT 1M, BDGA 5M)

#### Realization

Ministère des Ressources naturelles et de la Faune  
Direction des titres miniers et des systèmes  
Notice : This document has no legal value.

© Gouvernement du Québec, December 31, 2009

1/10 000 000

0 200 km

**FIGURE 2.1.** Exploration and exploitation mining titles in Québec, december 31, 2009.

**TABLE 2.1** - Distribution of mining exploration titles by administrative region

Administrative region	Number of titles <sup>(3)</sup>		Change in %	Area (ha)		Change in %
	2008 <sup>(1)</sup>	2009 <sup>(2)</sup>		2008 <sup>(1)</sup>	2009 <sup>(2)</sup>	
1 Bas-Saint-Laurent	940	813	-13,5	42 882	41 438	-3,4
2 Saguenay–Lac-Saint-Jean	10 463	7 529	-28,0	538 117	396 792	-26,3
3 Capitale-Nationale	1 620	1 503	-7,2	83 729	82 361	-1,6
4 Mauricie	2 097	2 099	0,1	103 066	115 436	12,0
5 Estrie	1 207	1 652	36,9	66 124	94 586	43,0
6 Montréal	0	0	0,0	0	0	0,0
7 Outaouais	3 567	1 360	-61,9	192 102	78 531	-59,1
8 Abitibi-Témiscamingue	32 631	29 084	-10,9	1 198 821	1 062 535	-11,4
9 Côte-Nord	26 841	17 012	-36,6	1 367 054	858 021	-37,2
10 Nord-du-Québec	182 363	134 880	-26,0	8 177 357	5 800 602	-29,1
11 Gaspésie–Îles-de-la-Madeleine	4 301	3 484	-19,0	201 167	160 472	-20,2
12 Chaudière-Appalaches	2 135	1 841	-13,8	95 947	85 776	-10,6
13 Laval	0	0	0,0	0	0	0,0
14 Lanaudière	475	287	-39,6	22 361	16 095	-28,0
15 Laurentides	3 425	1 782	-48,0	186 510	98 131	-47,4
16 Montérégie	132	147	11,4	8 001	8 497	6,2
17 Centre-du-Québec	248	266	7,3	14 126	15 678	11,0
Total	272 445	202 295	-25,7	12 297 364	8 914 951	-27,5

(1) : Source of data: MRNF, secteur Mines, as of october 31 2008.

(2) : Source of data: MRNF, secteur Mines, as of december 31 2009.

(3) : The total number of exploration titles per administrative region area may exceed the number of exploration titles for Québec as a whole, given that certain mining titles cover more than one administrative region and are counted more than once in two distinct regions.



# LAND PROTECTION

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Roch Gaudreau

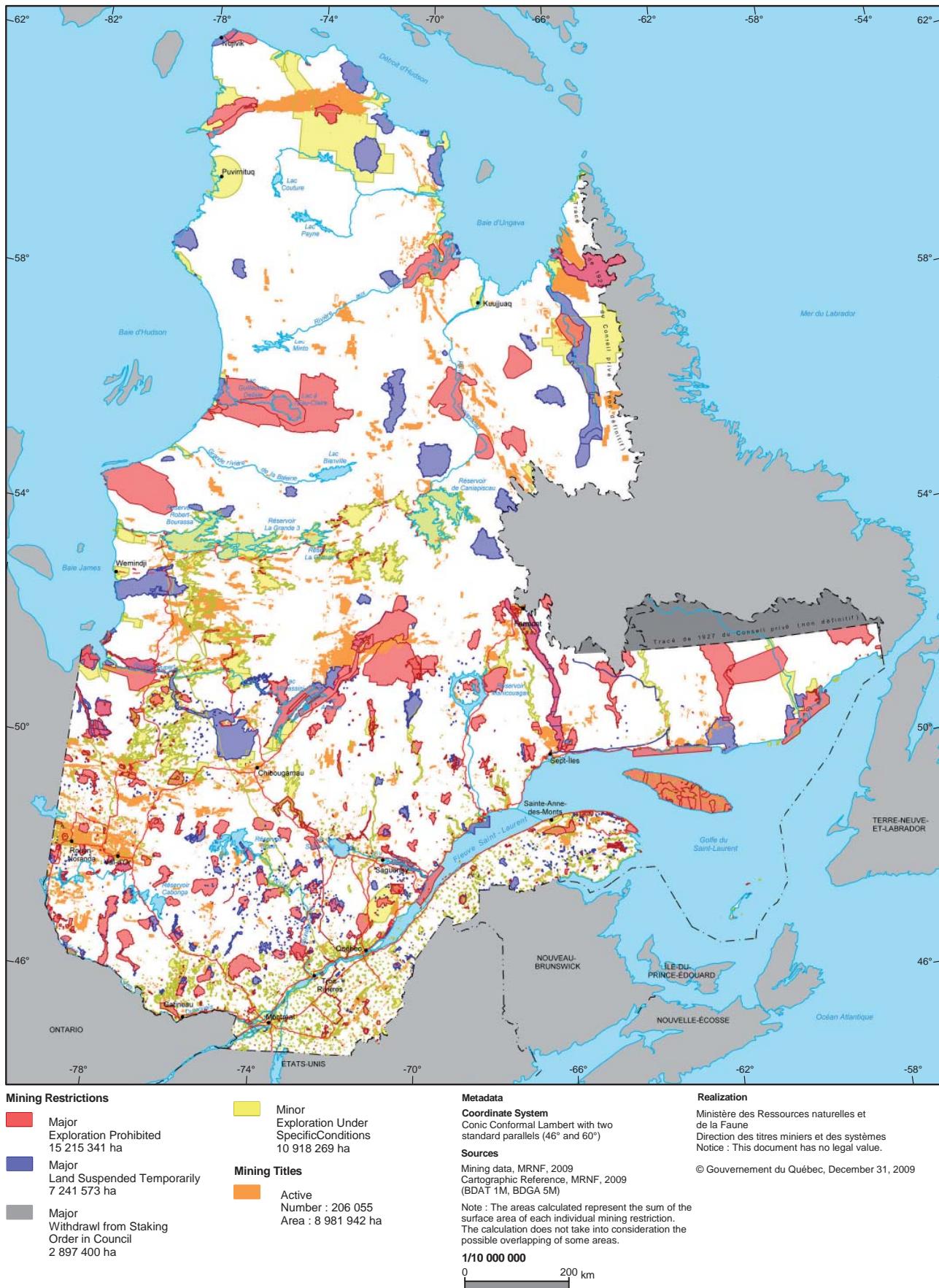
Under paragraph 304 of the Mining Act, the Minister may, by order, reserve to the State or withdraw from staking, map designation, mineral exploration or mining operations any land containing mineral substances that are part of the domain of the State and necessary for any purpose that he considers to be in the public interest, namely the performance of work such as:

- mining, industrial, port, airport, or communications facilities;
- development and utilization of waterpower, power transmission lines, storage tanks or underground reservoirs;
- creation of parks or ecological reserves;
- classification as an exceptional forest ecosystem;
- designation of a biological refuge.

The Minister may also, by order, delimit territories for non-exclusive purposes of recreation, tourism, plant-life or wildlife conservation.

Prior to making an order, the Minister may temporarily suspend, for a period of 18 months, the right to stake and designate on a map any parcel of land whose boundaries are shown on the maps kept in the office of the registrar.

As at December 31, 2009, lands subject to restrictions on exploration covered 33.7 M hectares, corresponding to 20% of Québec's landmass. Lands subject to major restrictions, with a ban on mineral exploration, covered a surface area of 15.2 M hectares or 9.1% of Québec's surface area (figure 3.1). Lands subject to temporary suspensions covered 7.2 M hectares or 4.3% of Québec's landmass. Lands subject to minor restrictions, where exploration is allowed under certain conditions, covered a surface area of 10.9 M hectares or 6.6% of Québec. For comparative purposes, the total surface area covered by mining rights is 8.9 M hectares or 5.5% of Québec's landmass (figure 3.1). Lands recognized as Protected Areas according to the International Union for Conservation of Nature cover 8.1% of Québec's territory and are included in the 20% of lands subject to restrictions on exploration.



**Figure 3.1.** Mining restrictions in Québec, December 31, 2009.

# GEOSCIENCE PROJECTS AT GÉOLOGIE QUÉBEC

Sylvain Lacroix, Patrice Roy, Jean-Yves Labbé and Charles Maurice

## Investments in Geoscience Activities

Géologie Québec's mandate is to acquire, process and release geoscience knowledge on the mineral resources of Québec, in order to assess and promote the mineral potential of Québec's regions in a sustainable development perspective. During the 2009-2010 fiscal year, Géologie Québec had a budget of nearly \$8.5M to conduct geoscience work across Québec, through three distinct sources of financing: the Mining Heritage Fund (for northern projects), the Copper Plan, and a new agreement with the Ministère du Développement durable, de l'Environnement et des Parcs (MDDEP).

Following the unveiling of Québec's Mineral Strategy in June 2009, the Mining Heritage Fund was established, providing a budget for 2009-2010 of \$6.3M to perform geoscience knowledge acquisition work across Québec. A sizable part of this funding enabled Géologie Québec to launch an ambitious geoscience knowledge acquisition program to stimulate exploration in Northern Québec, *i.e.* in areas located north of the 49<sup>th</sup> parallel.

The year 2009-2010 represents the fifth and last year of the Copper Plan, for which a budget of nearly \$1.8M was available. This plan was initiated in 2005, to promote the discovery of new copper ore deposits likely to contribute to the supply of copper concentrate for the Horne smelter.

Finally, Géologie Québec signed in the summer of 2009 a multi-year agreement with the MDDEP, through which the latter may transfer future budgets to Géologie Québec in order to perform Quaternary deposit mapping in areas targeted under Québec's Groundwater Knowledge Acquisition Program. In 2009-2010, the budget allocated to Géologie Québec may reach a maximum of \$300,000.

The geographic distribution of geoscience work performed in 2008-2009 is presented in Table 4.1. The bulk of the total budget was allocated in the Nord-du-Québec (53.9 %), Abitibi-Témiscamingue (15.0 %), and Côte-Nord (8.2 %) regions.

## Geoscience Projects in 2009-2010

Eighteen new geoscience knowledge acquisition projects were conducted or will be completed during the 2009-2010 fiscal year (Figure 4.1). The geoscience programming includes **nine northern projects, namely four geological mapping projects** (Nos 1 to 4), three geophysical projects (Nos 5 to 7), and two focusing on secondary environment geochemistry (Nos 8-9). The broad geoscientific orientations and strategies for knowledge and expertise acquisition that guide northern projects may be viewed at the Québec Exploration 2009 website:

**TABLE 4.1** - Distribution of the geoscientific surveys expenditures done by the Ministère des Ressources naturelles et de la Faune within Québec's administrative areas in 2008-2009

Administrative region	Expenditures in 2008-2009 (in 000 \$)
1 Bas-Saint-Laurent	770,0
2 Saguenay-Lac-Saint-Jean	472,9
3 Capitale-Nationale	610,6
4 Mauricie	242,7
5 Estrie	0,0
6 Montréal	0,0
7 Outaouais	54,8
8 Abitibi-Témiscamingue	1 499,3
9 Côte-Nord	825,0
10 Nord-du-Québec	5 391,8
11 Gaspésie-Îles-de-la-Madeleine	121,2
12 Chaudière-Appalaches	0,0
13 Laval	0,0
14 Lanaudière	3,6
15 Laurentides	9,4
16 Montérégie	0,0
17 Centre-du-Québec	0,0
Total	10 001,3

[http://www.quebecexploration.qc.ca/2009/pdf/S1\\_01\\_Lacroix.pdf](http://www.quebecexploration.qc.ca/2009/pdf/S1_01_Lacroix.pdf) (in French only).

In the Superior geological Province, surveys focused on the Baie-James region, where two mapping projects were carried out (Nos 2-3), as well as an airborne magnetic and spectrometer survey and one aeromagnetic survey (Nos 5-6) and an extensive lake-bottom sediment reanalysis project (No 8). A new multidisciplinary project was launched in 2009 in the Churchill Province east of Schefferville, in cooperation with the Geological Survey of Canada (GSC) and the Geological Survey of Newfoundland and Labrador (GSNL). In 2009-2010, the GSC conducted an airborne magnetic and spectrometer survey (No 7) covering areas in both Québec and Labrador, respectively located to the west and east of the survey conducted last year, which this year was the object of a mapping survey (No 1). Finally, the Grenville Province was the focus of a geological mapping survey (No 4) and of three geochemistry surveys (No 9) in collaboration with the *Corporation de promotion du développement minéral de la Côte-Nord*.

Under the **Copper Plan**, four geoscience projects (Nos 10 to 13) were conducted primarily in the Abitibi geological Subprovince. Three mapping surveys targeted mining camps or surrounding high-potential areas for base metals (Matagami,

Chapais, Malartic Group). An aeromagnetic survey covering an extensive area to the east of Val-d'Or and Senneterre was designed to locate the extensions of volcanic units of the Abitibi Subprovince toward the east, within the Grenville geological Province.

**Five new Quaternary projects** were undertaken (Nos 14 to 18). Two projects involve inventories of aggregate resources in the Outaouais and Abitibi-Témiscamingue regions, in order to define the potential and available resources for these materials needed for road construction and other infrastructure. The three remaining projects are aimed at mapping surficial geological formations and establishing the stratigraphy and three-dimensional distribution of unconsolidated deposits. These three projects are designed to support the development of a global portrait of groundwater resources in municipalized regions of Southern Québec.

Nine university research projects related to the inventory projects discussed above were also conducted in partnership with seven different universities in Québec, Ontario and France, in order to study certain aspects in greater detail and to support the training of a highly qualified workforce. Also, two 3D geo-physical and geological modeling projects were completed in the Rouyn-Noranda and Matagami areas respectively, through a collaborative effort with the Université du Québec en Abitibi-Témiscamingue. A new project to generate a set of compilation maps for the Appalachian Province, south of Québec City, was also undertaken in 2009-2010, in cooperation with the Université du Québec à Montréal.

The preliminary results of these projects were made public during two major events organized by Géologie Québec in 2009-2010: Abitibi Copper 2009, a convention that was held last September in collaboration with the GSC and the Ontario Geological Survey (OGS) (<http://www.mrnf.gouv.qc.ca/english/mines/quebec-mines/2009-11/abitibi.asp>), and Québec Exploration 2009, the most important geoscientific convention in Québec, hosted in cooperation with the Association de l'exploration minière du Québec (<http://www.quebecexploration.qc.ca/english/home.asp>).

## New Publications and Exploration Targets

In 2009, the MRNF published 108 original documents, including 15 English translations and 2 reports published in English: geoscience surveys, studies, and promotional or public outreach documents produced by the MRNF or its partners.

The location of NTS sheets covered by these new surveys, either geological maps accompanied by reports (6), a synthesis map of Anticosti Island, regional geophysical surveys (33), and new secondary environment geochemistry surveys or re-analyses (available in SIGÉOM à la carte), is shown in Figure 4.2. Promotional documents (5), regional studies (29), documents covering all of Québec (9), compilations (2), and documents provided by companies (7) are not shown on the map.

New knowledge acquisition work by Géologie Québec led to the definition of 59 new exploration targets (PRO 2009-08). These targets are located in the Superior, Churchill, and Grenville geological provinces. Most of these targets are for gold, base metals, as well as molybdenum, uranium, industrial minerals, and architectural stone.

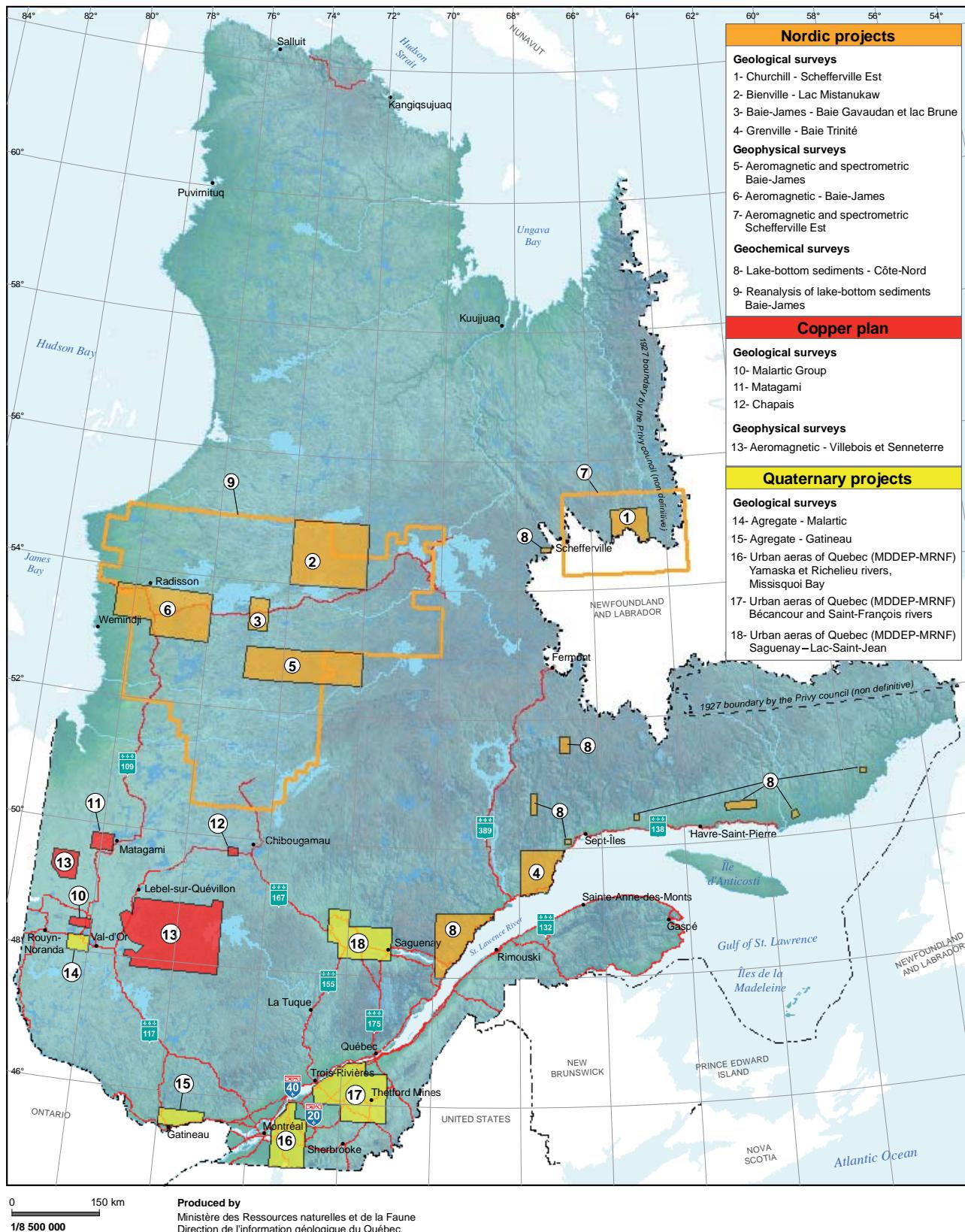
Two mineral potential assessment studies were also published in 2009, respectively focusing on porphyry Cu-Au±Mo deposits in the Baie-James region (EP 2009-02), and uranium and Cu-Au potential coupled with a project aimed at predictive mapping of mafic-ultramafic intrusions in the Grenville Province (EP 2009-03), produced by Consorem. Finally, new geochemistry maps showing anomalous targets in the secondary environment were produced for all of Québec (GM 64290).

In addition, eight new public outreach documents were published (in French only) and are available on the MRNF website at the following address: <http://www.mrnf.gouv.qc.ca/mines/publications/publications-geologie.jsp>.

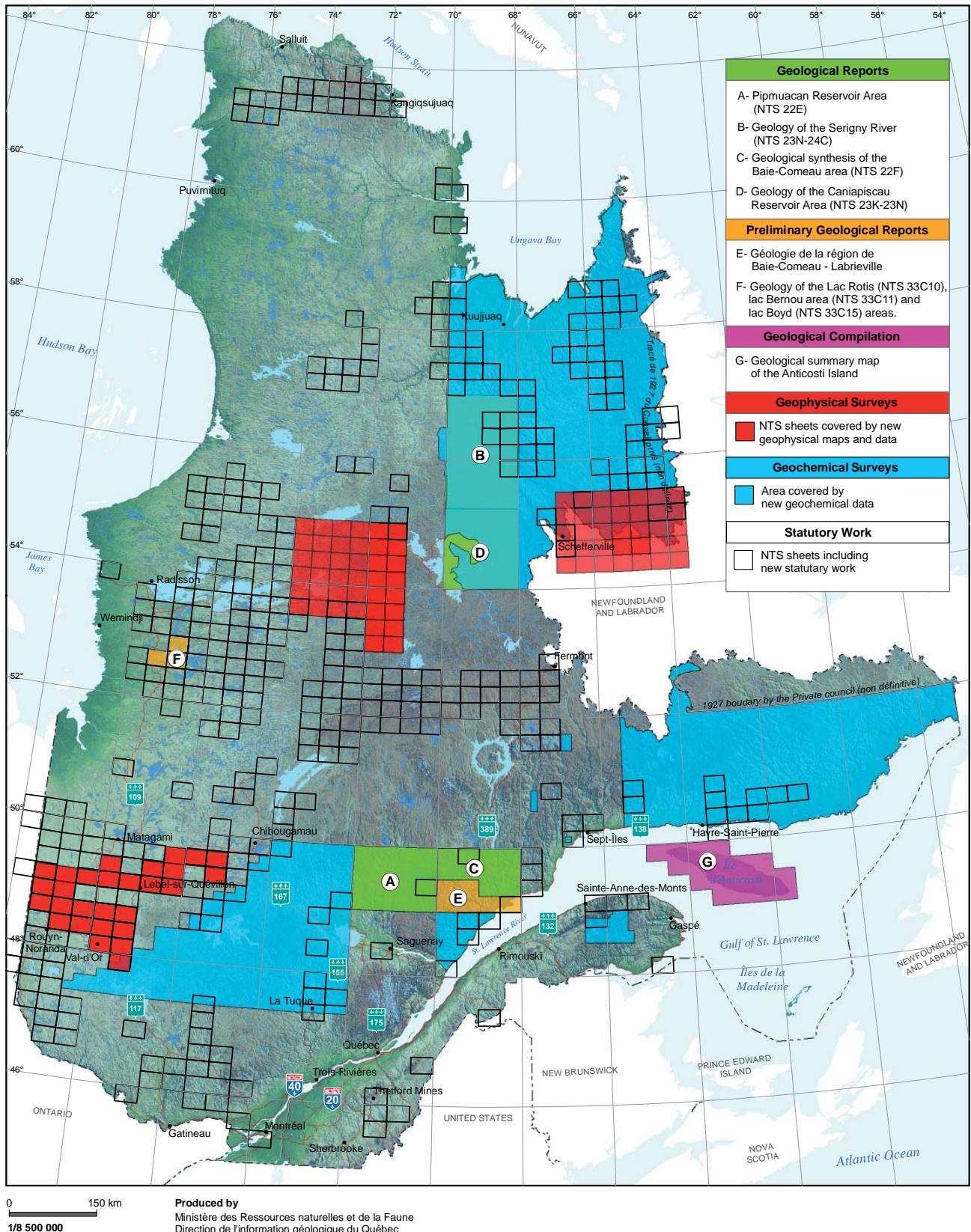
A new educational page for the public at large and more specifically designed for teachers was also put online (in French only): <http://education.mrnf.gouv.qc.ca/enseignants-mines.asp>. Recent work by the MRNF led to the discovery of the world's oldest rock. For more information, click on following links (in French only):

- <http://education.mrnf.gouv.qc.ca/enseignants-mines-roches.asp>
- <http://education.mrnf.gouv.qc.ca/activites-pedagogiques/vieille-roche/index.asp>

Finally, 599 assessment work reports were filed by companies and are available in the SIGÉOM database: <http://www.mrnf.gouv.qc.ca/english/mines/geology/geology-databases.jsp>. The location of NTS sheets covered by new assessment work reports is shown in Figure 4.2.



**FIGURE 4.1.** Location of geoscience projects for 2009-2010.



**FIGURE 4.2.** Geoscientific documents published in 2009.

# MINERAL EXPLORATION WORK

## Introduction

This chapter brings together, mainly in the form of tables and figures, information on the location and description of exploration and deposit appraisal projects conducted in Québec in 2009. Work performed by exploration companies in the search for metals and industrial minerals is reported in this chapter. Data were compiled from reports available on the Internet (press releases, public reports, etc.) or is based on forms forwarded to us by the companies themselves.

In 2008, exploration expenditures totalled \$526.1M and were largely concentrated in three administrative regions of Québec (\$503.8M for 95.7%): Nord-du-Québec (\$289.7M, 55.1%), Abitibi-Témiscamingue (\$182.4M, 34.7%), and Côte-Nord (\$31.5M, 6.0%) (table 5.1). Compared to 2007,

exploration and deposit appraisal expenditures increased by 10.43% across Québec (table 5.1). Exploration spending went up in most regions, except for the Côte-Nord, Mauricie, and Laurentides regions.

In 2009, revised intentions for exploration and deposit appraisal expenditures fell to \$244M despite an upturn in the price of several metals. As at December 31<sup>st</sup>, the number of active mining titles stood at 202 295 (table 2.1), which represents a drop of 25.7% relative to 2008. This decline affected most of the administrative regions of Québec, notably the three main mining regions: Abitibi-Témiscamingue, Nord-du-Québec, and Côte-Nord. In contrast, the number of mining titles increased in four regions, namely Mauricie, Estrie, Montérégie, and Centre-du-Québec (table 2.1).

**TABLE 5.1 - Distribution of exploration and mining development expenditures within Quebec's administrative regions**

Administrative region	Expenditures for 2007 <sup>(1)</sup> (in 000\$)	Expenditures for 2008 <sup>(1)</sup> (in 000\$)	% of total expenditures for 2008	Change in % for 2007-08
1 Bas-Saint-Laurent	c	c		c
2 Saguenay-Lac-Saint-Jean	3 018,3	7 694,5	1,5	154,9
3 Capitale-Nationale	409,0	627,4	0,1	53,4
4 Mauricie	2 563,9	1 838,2	0,3	-28,3
5 Estrie	c	316,8	0,1	c
6 Montréal	0,0	0,0	0,0	0,0
7 Outaouais	889,8	2 253,4	0,4	153,2
8 Abitibi-Témiscamingue	151 651,4	182 431,9	34,7	20,3
9 Côte-Nord	39 684,4	31 547,5	6,0	-20,5
10 Nord-du-Québec	270 210,4	289 680,0	55,1	7,2
11 Gaspésie-Îles-de-la-Madeleine	2 940,7	3 465,1	0,7	17,8
12 Chaudière-Appalaches	c	3 846,9	0,7	c
13 Laval	0,0	0,0	0,0	0,0
14 Lanaudière	0,0	c		c
15 Laurentides	2 230,6	2 168,5	0,4	-2,8
16 Montérégie	c	c		c
17 Centre-du-Québec	c	0,0		c
Total	476 400	526 100	100	10,43

(1) - Total exploration and mining development expenditures in Quebec for 2007 and 2008. Source of data : Raymond Beullac (Institut de la statistique du Québec).

c : confidential

503 812,4: Total expenditures of the 3 main regions (8, 9, 10) (in 000\$)

95,7: Total in % of the expenditures for the 3 main regions (8, 9, 10)

# Nord-du-Québec (region 10)

Patrick Houle

## NORD-DU-QUÉBEC REGION

This section provides an overview of exploration work conducted in the Nord-du-Québec region. Table 5.2 lists and briefly describes exploration and mine development projects in the Superior and Churchill provinces where work was conducted in 2009. Figures 5.1 and 5.2 show the location of these projects.

### SUPERIOR PROVINCE

In the Nord-du-Québec administrative region, the Superior Province extends across the entire Baie-James region and in the southeast part of Nunavik. It encompasses six geological subprovinces, which are, from north to south: the Minto, La Grande, Opinaca, Nemiscau, Opatica, and Abitibi subprovinces. Comprising volcano-plutonic and sedimentary assemblages, these subprovinces are transected by a series of E-W to WNW-ESE and NE-SW-trending shear zones. Volcanic assemblages are metamorphosed to the greenschist facies in the centre, grading to the upper amphibolite facies near their margins. These assemblages are intruded by a number of granitic intrusions assigned to various plutonic suites (Moukhsil *et al.*, 2003). In contrast, the metamorphic grade in sedimentary assemblages ranges from the amphibolite to the granulite facies.

South of the Baie-James region, in the Abitibi Subprovince, the Chapais-Chibougamau and Matagami mining camps continued to attract explorationists in the search for base and precious metals, in addition to iron, vanadium, and titanium. In the Lebel-sur-Quévillon–Desmaraîsville area, exploration projects were largely focused on the search for gold. Finally, in the Near North and Far North regions, fieldwork led to the discovery of several significant gold, base metal, uranium, and lithium occurrences.

### CHURCHILL PROVINCE

The Churchill Province lies in the northeast part of Nunavik. It mainly consists of Paleoproterozoic rocks of the New Québec (Labrador Trough), Torngat, and Ungava (Cape Smith Belt) orogens and their respective hinterland (Core Zone, largely composed of Archean rocks [James *et al.*, 1996; Wardle *et al.*, 2002]).

The main targeted commodities in the New Québec Orogen, the Torngat Orogen, and the Core Zone are uranium, iron, copper, gold, and rare earth elements (REE). The Cape Smith Belt (Ungava Orogen or Trough) once again attracted much attention from exploration companies searching for nickel, copper, cobalt, and platinum group elements (PGE).

## NEW QUÉBEC OROGEN

Also referred to as the Labrador Trough in Québec, or simply “the Trough”, the New Québec Orogen, with rocks dated from 2.17 to 1.79 Ga, forms a fold and thrust belt along the margin of the Superior Province. The Trough is composed of rocks comprising two volcano-sedimentary cycles and a third cycle of metasedimentary rocks (Clark and Wares, 2006).

### Torngat Orogen and Core Zone

The Paleoproterozoic Torngat Orogen is bounded to the east by Archean rocks of the Nain Province and to the west by Archean and Paleoproterozoic rocks of the Core Zone. This orogen is divided into lithotectonic domains and complexes separated by ductile shear zones.

Located in the Southeast Churchill Province, the Core Zone (formerly known as the Rae Province) lies between the Labrador Trough hinterland and the Torngat Orogen foreland. It is largely composed of Archean gneisses with bands of Paleoproterozoic supracrustal rocks. These rocks were subsequently deformed and metamorphosed during the Paleoproterozoic. The Core Zone is divided into a series of lithotectonic domains separated by wide deformation zones (Wardle *et al.*, 2002).

### UNGAVA OROGEN

The Ungava Orogen (Ungava Trough or Cape Smith Belt) consists of a Paleoproterozoic volcano-sedimentary belt that stretches over 370 km along an ENE-WSW axis. The area may be divided into four main tectonic units: a) the autochthonous Archean basement of the Superior Province; b) the allochthonous accretionary belt or Ungava Trough; c) the Paleoproterozoic Narsajuaq Terrane; and d) the parautochthonous Archean basement (Lamothe, 1994).

### EXPLORATION OUTLOOK FOR RARE METALS

The Nord-du-Québec region has experienced increased exploration in 2009 for lithium (Li) and rare earth elements (REE), mainly in the central part of the Baie-James region, in the Labrador Trough, and the Rae Province. In the Baie-James region for example, several Li occurrences were investigated in granitic pegmatites associated with peraluminous monzogranitic complexes near volcano-sedimentary belts, among which the Frotet-Evans Belt, west of Lac Mistassini (namely the Moblan project by **Globestar Mining Corporation** and **SOQUEM**) and the Eastmain Belt, south of Opinaca Reservoir (namely the James Bay Lithium project by **Lithium One**).

These monzogranitic plutons occurring along the contacts of volcano-plutonic and metasedimentary subprovinces constitute one of the most favourable geotectonic settings for rare metal deposits (Y-Zr-Nb-Ta-Be-Li-REE). Two relatively under-explored areas with this type of setting are noted in the Baie-James region, namely the Vieux-Comptoir Granite, emplaced along the boundary between volcano-plutonic assemblages of the La Grande Subprovince and metasedimentary rocks of the

Opinaca Subprovince (NTS sheets 33C04, 33F03, and 33F04), as well as granitic bodies near the contact between sedimentary rocks of the Nemiscau Subprovince and metasedimentary rocks in the Middle and Lower Eastmain Belt (NTS sheets 33C01 to 33C08, particularly the perimeter of the Kapiwak Pluton in 33C03).

In northern Québec, the main REE occurrences are hosted in pegmatites associated with peralkaline intrusive complexes enriched in REE, Y, Zr, and F, namely in the Lac Brisson (Strange Lake) area in the Churchill Province, and in REE-bearing carbonatites in the Labrador Trough (such as on the Eldor project by **Commerce Resources**) in Nunavik. Southwest of Chibougamau, areas near Lac Sébastien (NTS sheet 32G10) and Lac Yvonne (NTS sheets 32G02, 03) show good potential for the discovery of rare metal-bearing pegmatites, as do carbonatite-syenite alkaline complexes in the Abitibi Subprovince such as Dolodau, Lac Shortt, Lac Lacroix (Bandyayera *et al.*, 2003), Grevet, and Douay. On the one hand, these intrusions may host magmatic (primary) deposits of high-technology metals such as niobium, tantalum, and other rare earth elements, as well as certain industrial minerals such as apatite and nepheline. On the other hand, certain gold deposits in the Abitibi Subprovince are closely associated with carbonatites. Examples include the Simard Au-Ag-W showing (in the Dolodau carbonatite), the Lac Shortt mine (2.7 Mt @ 4.6 g/t Au), and the Douay West gold deposit (0.57 Mt @ 5.7 g/t Au). In Ontario, an association between alkaline rocks and gold mineralization has been established, for instance in Kirkland Lake (Ploeger and Crocket, 1980) and at Springpole Lake (near Red Lake; Barron *et al.*, 1989).

## Abitibi-Témiscamingue (region 08)

Pierre Doucet, James Moorhead, Denis Lesage, and Suzanne Côté

The Abitibi-Témiscamingue administrative region is located in western Québec and comprises three major geological assemblages, which are, from north to south: the Abitibi and Pontiac subprovinces (Superior Province) and the Grenville Province.

The Abitibi and Pontiac subprovinces form the south part of the Superior Province in Québec. The Abitibi Subprovince is the largest, one of the most studied, and among the richest Archean greenstone belts in the world. It comprises numerous granitoid intrusions and volcanic and sedimentary belts broadly trending E-W (figure 5.3.1), ranging in age from 2.75 to 2.67 Ga. The Abitibi Belt is transected by several E-W or NW-SE-trending, generally reverse faults, as well as sinistral NE-trending and dextral SE-trending faults.

The Pontiac Subprovince is separated from the Abitibi Subprovince by the Cadillac Tectonic Zone, a structure that hosts many gold deposits. The Pontiac Subprovince comprises

granitoid intrusions and orthogneisses in its central part, along with detrital sedimentary rocks and paragneisses with a few volcanic sequences. The latter form ultramafic, mafic, and felsic assemblages in the southwest part of the Pontiac. A few thin bands of mafic to ultramafic volcanic rocks are also present along its northern edge.

The Grenville Province is separated from the Pontiac and Abitibi subprovinces by the Grenville Front, a NE-trending tectonic zone characterized by a steep metamorphic gradient toward the SE. The Grenville is composed of Archean and Proterozoic orthogneisses, intrusive rocks, metasedimentary rocks and migmatites.

The Abitibi Subprovince is renowned for the great number and high grade of its precious metal (Au-Ag) and polymetallic (Cu-Zn-Au-Ag and Cu-Au) ore deposits. A few metallic deposits, architectural stone quarries, and industrial mineral deposits (lime, quartz, kyanite, mica, garnet) were also mined in the Pontiac Subprovince. Mining and exploration have made this territory one of the most important mining regions in Québec for close to a century.

Table 5.3 provides a brief description of exploration and mine development projects in the Abitibi and Pontiac subprovinces and in the western Grenville Province. Figures 5.3.1, 5.3.2, and 5.3.3 show project locations.

In 2009, nine metal mines were in operation in the Abitibi-Témiscamingue region, namely eight gold mines (**Kiena** (Au-Ag), **Wesdome Gold Mines**; **Lac Herbin** (Au-Ag), **Alexis Minerals Corporation**; **Beaufor** (Au-Ag), **Richmont Mines / Louvem Mines**; **Doyon** (Au-Ag), **IAMGOLD-Québec Management**; **Mouska** (Au-Cu-Ag), **IAMGOLD-Québec Management**; **Goldex** (Au-Ag), **Agnico-Eagle Mines**; **Lapa** (Au-Ag), **Agnico-Eagle Mines**; and **Barry** (Au-Ag), **Metanor Resources**) and one polymetallic mine (**LaRonde** (Au-Zn-Cu-Ag-Pb), **Agnico-Eagle Mines**). The year 2009 was marked by the inauguration of the **Lapa** mine (Au-Ag) held by **Agnico-Eagle Mines**.

As at December 31, 2009, 29,084 active mining titles were recorded in Abitibi-Témiscamingue, which represents a 10.9% decrease relative to 2008 (Table 2.1). The number of exploration projects stood at 117, compared to 142 in 2008. Most of the latter were focused on gold, and to a lesser extent, on base metals (copper-zinc and nickel-copper) and uranium. Exploration for rare metals continued in the Témiscamingue region. Exploration work on lithium deposits and showings began in 2009, mainly in the Preissac-La Corne area where hundreds of claims were map-designated. Metallurgical tests were conducted, and a pre-feasibility study and a drilling program were launched in the fall of 2009, in preparation for a feasibility study in 2010 on the possible reopening of the former Québec Lithium mine (1955-1965), located near the village of La Corne.

Based on the results of major drilling programs conducted in recent years, new resource estimates were released for several gold exploration projects in the Malartic–Val-d’Or area, most of the latter on previously known deposits. In 2010, mine development work is planned on many of these projects.

## Administrative Regions of Québec Except Abitibi-Témiscamingue (08) and Nord-du-Québec (10)

*Suzie Nantel, Steve Ouellet, Louis Madore, Pierre Doucet, and Denis Lesage*

This section of the report deals with all of the administrative regions of Québec except Abitibi-Témiscamingue (08) and Nord-du-Québec (10). Most of these regions are underlain by three geological provinces: Grenville, Appalachians, and the St. Lawrence Platform (figure 5.4).

The Outaouais (07), Laurentides (15), Mauricie (04), Saguenay–Lac-Saint-Jean (02), and Côte-Nord (09) regions, as well as parts of the Lanaudière (14) and Capitale-Nationale (03) regions are primarily located within the Grenville Province (figure 5.4). The latter is mainly composed of Archean and Proterozoic orthogneisses, intrusive rocks, metasedimentary rocks, and migmatites, that were affected by a series of magmatic and tectonic events, starting with the Labradorian orogeny (1710–1600 Ma) and ending with the Grenvillian orogeny (1090–980 Ma). The Grenville is a good place to search for copper, nickel, platinum, palladium, zinc, uranium, iron, titanium oxide, niobium, tantalum, and rare earth elements (REE) as well as for industrial minerals (silica, mica, graphite) and architectural stone.

The Estrie (05), Bas-Saint-Laurent (01), and Gaspésie–Îles-de-la-Madeleine (11) regions, as well as parts of the Montérégie (16), Chaudière-Appalaches (12), and Centre-du-Québec (17) regions are for the most part located within the Appalachian Province (figure 5.4). The latter is composed of Phanerozoic sedimentary, volcanic, and intrusive rocks that were emplaced and deformed during the Taconian (460–440 Ma), Acadian (410–380 Ma), and Alleghanian (320–220 Ma) orogenies, although the effects of the latter are essentially visible in the east-central and southeastern United States. Exploration companies are attracted to the Appalachian Province for its potential for copper, zinc, silver, gold, chrome, as well as aluminous clay, whereas mining companies interested in non-metallic commodities have long known about its industrial minerals (chrysotile, talc, quartz, halite, clay), construction materials, aggregates, architectural stone resources, as well as natural gas, brine, and peat.

Finally, the Montréal (06) and Laval (13) administrative regions, as well as parts of the Centre-du-Québec (17),

Lanaudière (14), Mauricie (04), and Capitale-Nationale (03) regions are located within the St. Lawrence Platform geological Province (figure 5.4). This province is composed of undeformed limestone and sandstone that were deposited during the Cambrian (544–500 Ma) and Ordovician (500–440 Ma). It is mainly characterized by its resources in industrial stone and building stone (limestone, dolomite, sandstone), and for its natural gas potential.

Activities performed by exploration companies in the search for mineral resources are reported in this section (table 5.4, figure 5.4). The data were collected from reports available on the Internet or compiled from forms forwarded to us by the companies themselves. In 2009, most administrative regions were the site of mineral exploration work. Oil & gas exploration, quite active in the St. Lawrence Platform and the Appalachians, will not be discussed in this report.

### **EXPLORATION IN ADMINISTRATIVE REGIONS WITHIN THE GRENVILLE GEOLOGICAL PROVINCE**

In 2009, the Grenville geological Province continued to attract exploration companies. The latter acquired new properties or continued their exploration programs. In other cases, some companies decided to postpone exploration programs undertaken prior to 2009. The Grenville Province attracted renewed attention for rare earth elements (REE). Applications for these commodities in high-technology products and rechargeable car batteries, among others, as well as China’s decision to restrict its exports, explain this interest.

In the Outaouais region northeast of Cabonga Reservoir, a new copper prospect was discovered in gabbroic rocks in contact with metasedimentary rocks, based on anomalies in glacial deposits (table 5.4, figure 5.4, project 1). New properties for carbonatite- and pegmatite-hosted rare earth elements were acquired near Gatineau and Otter Lake by **Stelmine Canada** (projects 2 to 6). **Midland Exploration** has kept eight of its fourteen zinc properties located on either side of the road that links Grand-Rémois and Gatineau (MRNF, 2009). The company intends to continue exploration work undertaken prior to 2009, once a new partner has been found.

In the Laurentides region, two exploration projects located north of Mont-Laurier were active in 2009, one in the search for copper-gold-silver and molybdenum as well as niobium, rare earth elements, uranium, and iron, in an alkaline complex (project 7), and the other investigating a copper-nickel deposit at the contact between gabbroic and metasedimentary rocks (project 8). Near Sainte-Agathe-des-Monts, **Trijet Mining Corp.** decided to postpone exploration on the Ivry property, where iron and titanium oxide mineralization is associated with the Morin anorthositic Complex. **Midland Exploration** put two of its properties hosting zinc in marble units, near Labelle and Kilmar, on stand-by for 2009 (MRNF, 2009). **Richmond Minerals** also postponed work on its Bondy property, located

in the Réserve faunique de Papineau-Labelle, about 35 km southeast of Mont-Laurier, where the geological setting is favourable for iron oxide-copper-gold deposits.

In Lanaudière, northwest of Saint-Michel-des-Saints, the former Maisonneuve mica mine was the focus of reconnaissance work in the search for rare earth elements and uranium (project 9).

In Mauricie, an exploration program was undertaken at the former Montauban mine (project 10) in an attempt to discover new gold and base metal (zinc, lead, copper) resources. Further north near Gouin Reservoir, gold exploration work is underway (project 12). A new exploration project focusing on rare earth elements is underway on a historic allanite and zircon occurrence near Lac Baude, about 25 km north of La Mauricie National Park (project 11).

In the Capitale-Nationale region, two mineral exploration projects are reported to have undergone exploration work in 2009: one project for zinc-copper-gold in the Réserve faunique de Portneuf (project 13) and another exploration project for vanadium-titanium-iron located near Saint-Urbain in Charlevoix (project 14).

In the Saguenay–Lac-Saint-Jean region, exploration work was conducted in the search for phosphate north of Pipmuacan Reservoir (project 17). North of Lac Saint-Jean, along logging road R-0206, exploration took place on a tantalum-niobium deposit (project 16). Two gold exploration projects were active in 2009, one located about 50 km west of Lac Péribonka (project 20) and another on a new gold showing located some 30 km southeast of Chibougamau (project 19). Uranium exploration was reported in the northernmost part of the Saguenay–Lac-Saint-Jean region and along its western edge, near Chibougamau (projects 18, 21 and 22). Finally, a new project for rare earth elements is underway, near the Niobec mine in the Saint-Honoré area (project 15).

In the Côte-Nord region, mineral exploration in 2009 was largely focused on iron ore in the Fermont area (projects 25, 26 and 27) and on uranium to the north and northeast of Havre-Saint-Pierre (projects 30, 31, 32 and 33). This region was also targeted for its rare earth element potential this year, like many other regions across Québec. Projects focusing on these commodities are respectively located northwest of Sept-Îles and east of Natashquan (projects 29 and 34).

## **EXPLORATION IN ADMINISTRATIVE REGIONS WITHIN THE APPALACHIAN PROVINCE**

Among the regions located within the Appalachian geological Province, the Estrie, Chaudière-Appalaches and

Gaspésie–Îles-de-la-Madeleine regions were the most active in terms of mineral exploration.

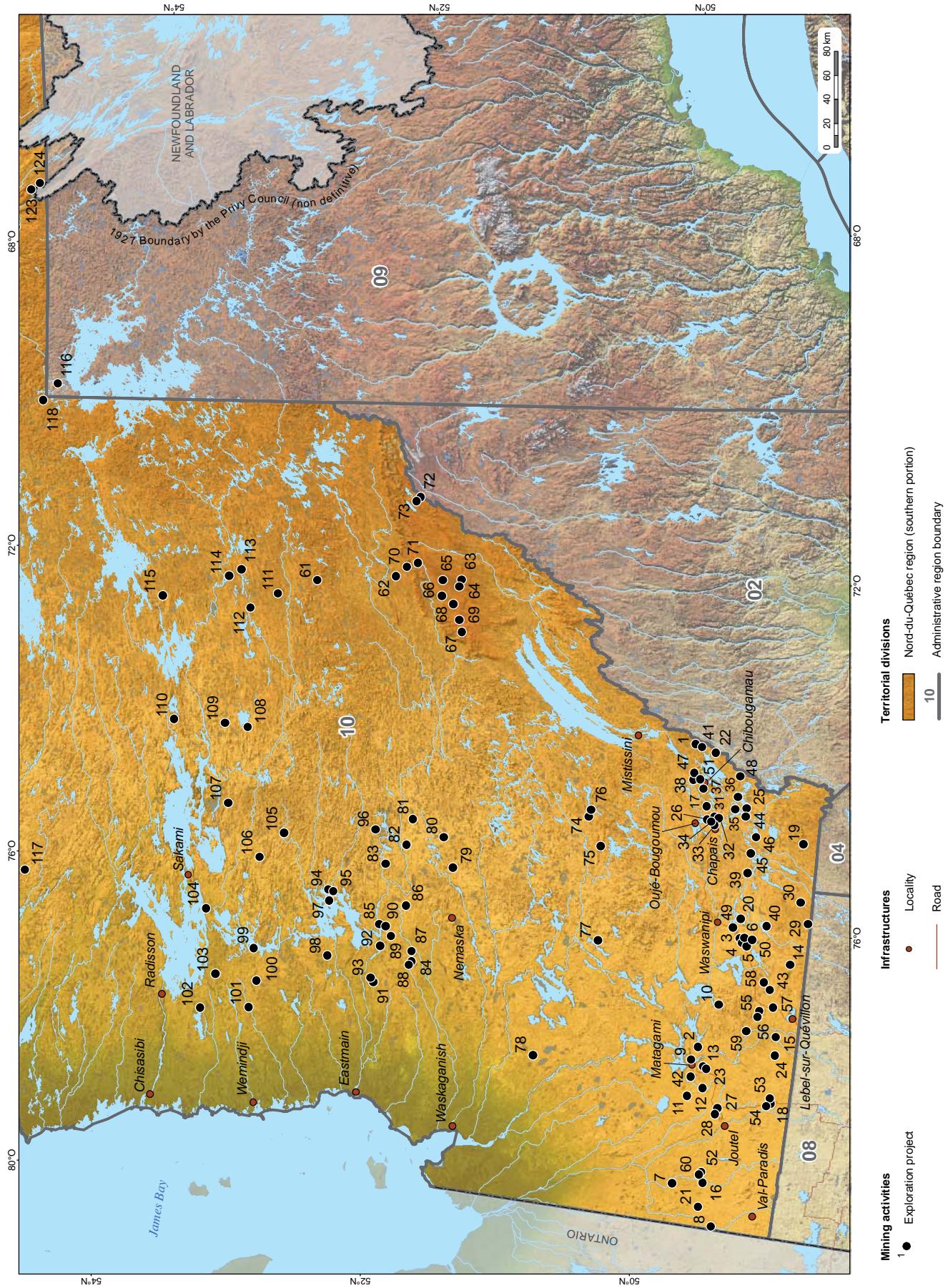
In the Estrie region, mineral exploration companies were particularly active in terms of claim acquisitions and property option agreements. Fieldwork was reported on the Weedon property, in the search for polymetallic occurrences (project 35). On November 1, 2009, 1,176 claim applications were on record in the Register of mining rights, a particularly high number for a mature mining camp, in other words an “old mining camp”. Later on, part of the claims were granted to **Bowmore Exploration**, a strategic partner to **Osisko Mining Corporation** in the search for gold properties. Other claims were registered in the name of **Ice Age Gold Corporation**, a company that already owns other placer gold targets in the Estrie region. On December 9, 2009, **Uragold Bay Resources** announced it had acquired all of these targets.

Still in the Estrie region, other properties were acquired near Sherbrooke and east of Mont Mégantic. These are the Stoke property, with copper and gold showings hosted in a volcano-sedimentary belt (project 36), and the Clinton property, which hosts copper and zinc lenses (project 37). In December of 2009, a geophysical survey commenced on the two properties.

The Nicolet property, which straddles part of the Estrie, Centre-du-Québec, and Chaudière-Appalaches regions, has recently been optioned for its gold and base metal potential within the volcano-sedimentary sequence of the Thetford Mines ophiolitic Complex (project 38).

In Chaudière-Appalaches, exploration work is concentrated along a southwest-trending axis corresponding to a major geological structure named the Baie Verte-Brompton Line. Exploration work conducted along this axis, between Saint-Victor and Sainte-Lucie-de-Beauregard, is focused on the search for gold and base metals (zinc-copper-lead) (projects 40 and 41). One exploration project for chrome is also active, near the Black Lake mine (project 39).

In the Gaspésie region, copper and gold are the main targeted commodities. Four projects are reported to have been active in 2009, three of which are located near the Parc national de la Gaspésie (projects 42, 43 and 44). The fourth project is located just east of the Grande-Rivière basin, in the heart of the Gaspe Peninsula (project 45). Note that in 2008, metal (including zinc and copper) producer **Xstrata** acquired nearly 300 claims in the Gaspésie region. Finally, exploration work continues on a red clay deposit located 15 km south of Grande-Vallée (project 46), in order to better delineate this deposit and eventually extract a high-purity alumina concentrate.



**FIGURE 5.1.** Exploration projects in the Baie-James region in 2009.

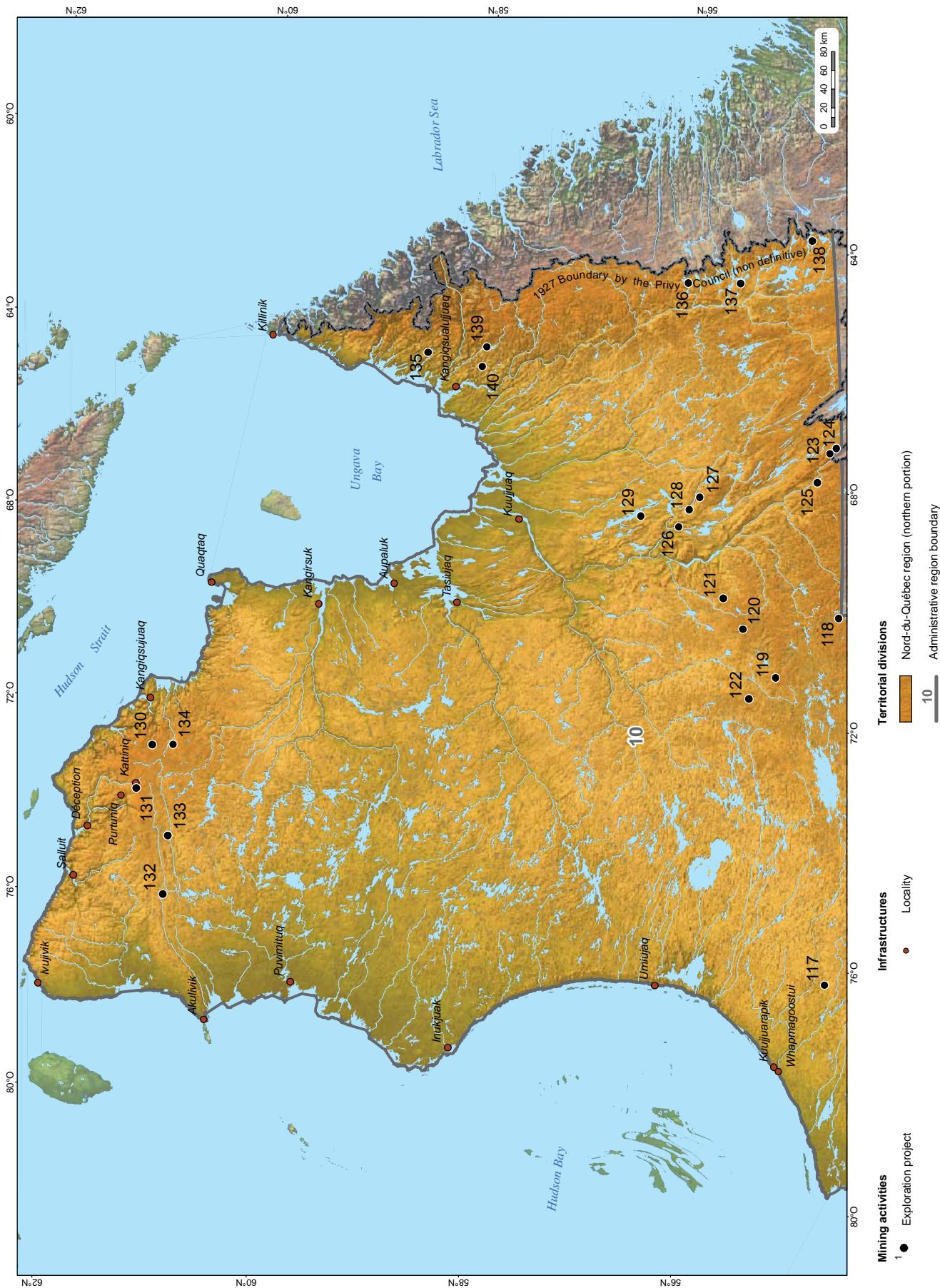


FIGURE 5.2. Exploration projects in the Nunavik region in 2009.

TABLE 5.2 - Exploration projects in the Baie-James and Nunavik regions in 2009

NOS	NTS	TOWNSHIP	COMPANIES / PROSPECTORS	PROJECT	COMMODITIES	EXPLORATION WORK <sup>(1)</sup>
<b>BAIE-JAMES</b>						
1	32H13	Rinfret	Apella Resources Inc.	Lac Dore North	V-Ti-Fe	D(10:993), G, GpM(G), Pr, S, T
						Forty-three channel samples were collected on the deposit. Highest grades are: 1.05% $V_2O_5$ , 70.8% Fe, and 11.8% $TiO_2$ , and average grades are: 0.51% $V_2O_5$ , 38.14% Fe, and 6.06% $TiO_2$ . Best results in drill hole include grades from 0.46% to 0.64% $V_2O_5$ over thicknesses from 0.71 m to 5.28 m in drill hole LDN-09-01.
2	32F11, 12	Lozeau, Comporté, Galinée, Isle-Dieu	Apella Resources Inc.	Iron-T (Audest Option)	V-Ti-Fe	D(13:1738), G, Pr, Re
3	32F08, 09	Le Sueur	<b>Metanor Resources Inc.</b>	<b>Bachelor Lake Complex</b>	<b>Au</b>	<b>Development work (shaft)</b>
4	32F08, 09	Le Sueur	Metanor Resources Inc. / Aur Resources Inc. / Teck Cominco Ltd	Hewfran	Au	D(x:240)
						The surface extension of the Hewfran West zone was traced by stripping. Channel samples yielded a grade of 2.62 g/t over 6.0 m. Shallow drill holes under the stripped area intersected several mineralized sections. Results include a grade of 3.72 g/t Au over 4.2 m in drill hole B-137.
5	32F08	Le Sueur, Nelligan	Metanor Resources Inc.	MJL-1 / MJL-2	Au	D(5:821)
6	32F08, 09	Le Sueur, Nelligan, Benoist	Murgor Resources Inc. / Metanor Resources Inc.	Nelligan	Au	D(8:415)
7	32E14	Brouillan	NQ Exploration Inc.	Carheil	Cu-Zn-Au-Ag	D(4:1251), GpEm(B)
						Three drill holes intersected a zone of sphalerite-chalcopyrite-pyrite stringers in altered rhyolites. Drill hole CA2009-04 intersected 118.5 m grading 0.40% Zn and 27.7 g/t Ag.
8	32E05, 06	Dieppe, Collet	Cartier Resources Inc.	Dieppe-Collet	Au	D(2:378)
9	32F13	Daniel, Isle Dieu	Xstrata Zinc Corporation Canada / Donner Metals Ltd	North Flank	Zn-Cu-Au-Ag	GpEm(G), TE
10	32F10	Bourbaux	Freewest Resources Canada Inc. / Explorateurs-Innovateurs de Québec inc.	Dalhousie Mountain	V-Ti-Fe-Cu-Ni	S
						In the Bell River intrusive Complex, five holes drilled in December 2008 in gabbroic and pyroxenitic rocks yielded iron, titanium, and vanadium values, including a 30.5-m section grading 0.58% $V_2O_5$ , 30.6% Fe and 2.93% Ti.
11	32E09, 16, F12, 13	Daniel, Cavelier, Desmazures, La Gauchetière	Xstrata Zinc Corporation Canada / Donner Metals Ltd	Matagami	Zn-Cu-Au-Ag	D(29:16 930), GpEm(B, G, A)
						Drill hole DAN-09-10 intersected chalcopyrite-rich massive sulphides grading 2.2% Cu, 8.8 g/t Ag, and 0.25 g/t Au over 3.95 m.
12	32F12	Cavelier	Donner Metals Ltd	Cavelier	Cu-Zn-Au-Ag	D(x:x)
						Drill hole CAV-09-06 intersected semi-massive sulphides (pyrrhotite and sphalerite) grading 1.64% Zn over 1.63 m.
13	32F13	Galinée	Xstrata Zinc Corporation Canada / Donner Metals Ltd	South Flank	Zn-Cu-Au-Ag	D(7:x)
14	32F01, 02	Ralleau, Wilson	Megastar Development Corporation	Ralleau	VMS (Cu-Zn)	GpEm(A), Gp(G), Pr, S

TABLE 5.2 - Exploration projects in the Baie-James and Nunavik regions in 2009

NOS	NTS	TOWNSHIP	COMPANIES / PROSPECTORS	PROJECT	COMMODITIES	EXPLORATION WORK <sup>(1)</sup>
15	32F03, 04	Comtois, Fraser, Quévillon, Cramolet, Thémisnes	Maudore Minerals Ltd	Comtois	Au-Zn	D(99:33786), GpEm(G), GpEm(G)
16	32E10, 11	Estrees	Cogitore Resources Inc. / IAMGOLD-Québec Management Inc.	Caribou	Zn-Cu-Au-Ag	D(11:4579), G, Gs(r), GpEm(B,G), TE
						Recent drilling results and a new geological interpretation suggest that the Osborne and Bell gold zones are linked rather than separate entities. Best results include an intersection grading 20.0 g/t Au over 4.5 m in drill hole 273.
17	32G15	Scott, Lévy	Cogitore Resources Inc.	Scott Lake	Zn-Cu-Au-Ag	D(24:8900), Gs(r), GpEm(B), Re
						Two drill holes intersected a massive sulphide zone and a zone of sulphide stringers, with grades in drill hole DDH SC-42, of 1.2% Cu, 7.6% Zn, 0.3 g/t Au, and 49.7 g/t Ag over 62.8 m. Recent drilling led to a new inferred resource estimate of 3.6 Mt at 1.1% Cu, 5.2% Zn, 0.3 g/t Au, and 36 g/t Ag.
18	32F04	Chaste, Glandelet	North American Palladium Ltd	Sleeping Giant Mine	Au-Ag	D(61:13244)
						The first gold pour took place on October 6, 2009. Underground operations will gradually increase to achieve commercial production in early 2010.
19	32G02, 03	Bressani	Lounor Exploration Inc.	Brassani - Nicole	Au	S, T
20	32F09, G12	Lespérance, Cand, Le Sueur	Northern Superior Resources Inc. / Matamec Explorations Inc. / IAMGOLD-Québec Management Inc.	Wachigabau	Au - Cu-Zn - Diamond	G, GpMa(G), Pr, S, T
21	32E11	Casa Berardi	Aurizon Mines Ltd	Casa Berardi Mine	Au	D(x:x), Re
						Drill holes completed from an exploration drift on level 810 m of the mine intersected gold-bearing quartz veins in zones 118-120. Best results include 16.8 g/t Au over 5.3 m in drill hole CBP-0057.
22	32G16, H12, 13	Lemoine, Rinfret	Apella Resources Inc.	Lac Dore	Fe-V-Ti	GpMa(G), Pr, S
23	32F12	Galinée	Donner Metals Ltd / Xstrata Zinc Corporation Canada	Bracemac-McLeod	Cu-Zn-Au-Ag	D(x:x), FM, GpEm(B), TE
						A definition drilling program conducted within the scope of a feasibility study on the Bracemac-McLeod project is underway. Drill hole BRC-09-111 yielded grades of 8.1% Zn, 1.53% Cu, 44.74 g/t Ag, and 0.244 g/t Au over 8.1 m. In the Key Tuffite horizon, drill hole MCL-09-02 intersected 21.60 m of massive sulphides (1280.4 to 1302.4 m - core length) grading 6.05% Zn, 1.85% Cu, 65.5 g/t Ag, and 1.56 g/t Au, 411 m below the current McLeod zone.
24	32F03, 04	Cramolet, Comtois, Thémisnes, Fraser, Fonteneau, Barrin	Midland Exploration Inc. / North American Palladium Ltd	Laflamme	Au	GpEm(A), GpMa(A)
25	32G10	Fancamp, Rale	Murger Resources Inc.	Fancamp	Au	G, GpEm(A), GpMa(A), Pr, S, T
						Five trenches were excavated in the Fancamp deformation zone. Gold mineralization is composed of quartz-carbonate-tourmaline veins. Best grades obtained from channel samples include 10.4 g/t Au over 4.3 m in the West structure.
26	32C15	Daubrée	2736-1179 Québec inc.	Lac Éloizes	Au	D(8:1755)
27	32E08, 09	Douay	Société d'exploration minière Vfor Inc.	Douay	Au	TE
28	32E08	Douay, Joutel	Société d'exploration minière Vfor Inc.	Douay West	Au	Env, Met, TE, Re
29	32C04	Carpinet	Hinterland Metals Inc.	Lockout	Au	D(7:964), GpEm(G), GpMa(G)
						Drill holes intersected gold zones along the contacts between a graphitic unit and mafic lavas, injected with porphyry dykes. Best results include 5.2 g/t Au over 2.0 m in drill hole LK09-06.

TABLE 5.2 - Exploration projects in the Baie-James and Nunavik regions in 2009

NOS	NTS	TOWNSHIP	COMPANIES / PROSPECTORS	PROJECT	COMMODITIES	EXPLORATION WORK <sup>(1)</sup>
30	32G04	Urban	Murgo Resources Inc. / Freewest Resources Canada Inc. / Noront Resources Ltd / Eagle Hill Exploration Corporation	Windfall Lake	Au	D(x:3000), G, GpMa, Pr, S, T, TE
31	32G15	Lévy	Apella Resources Inc.	Laura Lake	Au-Cu-Ag	Pg
32	32G15	Lévy	Apella Resources Inc.	Indian Lake	Au-Ag-Cu	Pg
33	32G15	Lévy	Explorateurs-Innovateurs de Québec inc.	Opémisca	Cu-Au	GpEm(G), S, T
34	32G15	Lévy	2736-1179 Québec inc.	Cooke	Cu-Au-Ag-Co	D(39:12657), GpEm(B, G)
35	32G10	Brongniart, Rale, Fancamp, Hauy	Breakwater Resources Ltd	Eau jaune	Au	G, S, T
36	32G09, 10	Fancamp, Queylus, La Dauversière, Hauy	Tawsho Mining Inc.	Chevrier	Au	D(5:2103), Re, TE
37	32G16	McKenzie	SOQUEM INC.	David	Zn-Au	D(3:800)
38	32G16	McKenzie	SOQUEM INC.	Dufault	Mo-Au	D(3:1200)
39	32G11	Guercheville	SOQUEM INC.	Fenton	Au	G, Pr, S, T
40	32G05	Margry Le Tac	L. Desagné	Nicobi	Cu-Ag-Au	S, T
41	32H13	McCorkill	Sementiou inc.	Demers Lake	Cu-Au	D(2:x)
42	32F12, 13	Daniel	Xstrata Zinc Corporation Canada	Perseverance Mine	Zn-Cu-Au-Ag	D(x:x)
43	32F02, 07	Grevet	Breakwater Resources Ltd	Langlois Mine	Zn-Cu-Ag	TE
44	32G10	Rale	Stellar Pacific Ventures Inc. / 9148-5706 Québec inc. / G.L. Géoservice inc. / M. Bouchard	Monster Lake	Au	TE
45	32G06, 11	Drouet, Gradis, Druillettes	Cartier Resources Inc.	Diego	Au	TE
46	32G07, 10	Rale, Hazeur, Druillettes	Agnico-Eagle Mines Ltd	Windy Lake	Cu-Zn-Au-Ag	TE
47	32G16	McKenzie, Roy	Agnico-Eagle Mines Ltd	Blondeau	Au-Cu	TE
48	32G09	Charron, Dollier, La Dauversière, Queylus	Arianne Resources Inc.	R-14 (La Dauversière)	Au-Ag	Pr, S
49	32F09, G12	Lespérance, Gaud, Le Sueur, Boivin	SOQUEM INC. / MDN Inc.	Lespérance, Short Lake	Cu-Au	D(5:1791)
50	33F09, G12	Le Tac, Le Sueur	SOQUEM INC. / MDN Inc.	Le Tac	Cu-Au	D(5:1731)

TABLE 5.2 - Exploration projects in the Baie-James and Nunavik regions in 2009

NOS	NTS	TOWNSHIP	COMPANIES / PROSPECTORS	PROJECT	COMMODITIES	EXPLORATION WORK <sup>(1)</sup>
51	32G16	McKenzie	SOQUEM INC.	Brosman	Cu-Au	D(17:2890)
52	32E10	Estrées, Estrades, Orvilliers	Cogitore Resources Inc.	Estrades	Zn-Cu-Au-Ag	Pr
53	32E01, F04	Maizerets, Chaste, Glandelef, Soissons	North American Palladium Ltd	Dormex	Au	D(x:21462)
54	32E01, F04	Maizerets, Chaste, Soissons	North American Palladium Ltd	Harricana North	Au	GpEm(A), GpMa(A)
55	32F07	Desjardins	North American Palladium Ltd	Flordin	Au	TE
56	32F06, 07	Desjardins	North American Palladium Ltd / Canadian Royalties Inc.	Cameron Shear	Au	D(4:1400)
57	32F02	Franquet, Grevet	Breakwater Resources Ltd	Rivière Wedding	Au	GpEm(G), Gs(r), S
58	32F07	Duplessis, Mountain	Breakwater Resources Ltd	Duplessis-Mountain	Au	G, GpEm(G), Pr
59	32F06	Bruneau	Adventure Gold Inc.	Bruneau-Sinclair	Au	G, Pr
60	32E10	Puisseaux, Orvilliers	GLR Resources Inc.	Puisseaux	Au-Cu-Ag	GpEm(G)
<b>61</b>	<b>33A16</b>	<b>Stormway Diamond Corporation / SOQUEM INC.</b>	<b>Foxtrot</b>	<b>Diamond</b>	<b>D(32:16506), FM, Re, TE</b>	
33		The JV partners quadrupled the tonnage in the Renard 2 kmberlite following their summer drilling program. Resources on the Renard diamond project are now estimated at 23.0 million carats of indicated mineral resources and 13.3 million carats of inferred mineral resources, based on a diamond valuation of US\$117 per carat.				
62	33A08	Eastmain Resources Inc.	Eastmain Mine	Au-Ag	G, Gs(sl), Pr, S	
63	32P16, 22M13	Cameco Corporation	Otish South	U	D(8:2430), GpEm, GpMa, Pg	
64	32P16, 33A01	Ditem Explorations Inc.	Otish Uranium	U	S	
65	32P16, 33A01	Strateco Resources Inc.	Matoush	U	D(4:26144), Env, Pg, Rcd(x:5226), Re	
66	32P16	Strateco Resources Inc.	Éclat	U	D(1:4375)	
67	32P15	Strateco Resources Inc. / Majescor Resources Inc.	Mistassini	U	D(7:786), GpEm(A), GpMa(A), Pg	
68	32P16	Strateco Resources Inc. / Pacific Bay Minerals Ltd	MIST-09-03 with an 11-m intersection grading 0.13% U <sub>3</sub> O <sub>8</sub> .			
69	32P09, 10, 15, 16, 22M13	Dios Exploration Inc.	Hotish	U-Diamond-REE	G, Gs(sl), GpMa(G), GpRa(G, A), Pr, S	D(12:3721), Pg
70	23D04	Virginia Energy Resources Inc. / Big Red Diamond Corporation	Pacific Bay	U		
71	23D02, 03, 04, 07, 08	Virginia Energy Resources Inc. / Xemplar Energy Corporation	Otish Uranium	U	Gs(l), GpMa(G), Pg	

TABLE 5.2 - Exploration projects in the Baie-James and Nunavik regions in 2009

NOS	NTS	TOWNSHIP	COMPANIES / PROSPECTORS	PROJECT	COMMODITIES	EXPLORATION WORK <sup>(1)</sup>
72	23D03		Abitex Resources Inc.	Epsilon	U-Au-Ag-Pb	G, GpMa(A), GpRa(A), Pr, S, T
				Discovery of a new surface showing, dubbed Epsilon-B (grab sample B-02: 3.54% U <sub>3</sub> O <sub>8</sub> , 46.85 g/t Au, 1.20% Pb, and 89.8 g/t Ag). Its strong similarities with the «Lavoie» deposit on the Lavoie property and its location on surface make this a high-potential target.		
73	23D02, 03		Abitex Resources Inc. / Areva Québec Inc. / SOQUEM INC.	Lavoie	U	D(41:4862), GpMa(A)
				A drilling program was conducted on the «Lavoie» deposit (historic resource: 385,000 t at 0.7% U <sub>3</sub> O <sub>8</sub> ) at 25 m spacing along a 500-m-long east-northeast axis.		
74	32 10		Globestar Mining Corporation / SOQUEM INC.	Moblan	Li-Na-K-feldspar	G, Pr, S, T
75	32 11		Virginia Mines Inc. / MacDonald Mines Exploration Ltd	Asinica	Au	G, Gs(t), S, T
76	32 09, 10, 15, 16, 32O01		Beaufield Resources Inc. / Melkior Resources Inc.	Troilus	Cu-Zn-Au-Ag	Pr, S
77	32K09		Victory Nickel Inc.	Lac Rocher	Ni	TE
78	32K13		Pacific North West Capital Corporation / CanAlaska Uranium Ltd	Glitter Lake	Cu-Ni-PGE	Gp(A,G)
79	32O12		Nemaska Exploration Inc.	Lac Arques	Cu-Ni-PGE-Au-Ag	GpEm(A), GpMa(A), GpRa(A), Pr, S
80	32O14		Nemaska Exploration Inc.	Lac de la chlorite	Cu-Ni-PGE	D(3:x), G, S, T
81	33B03		Virginia Mines Inc. / Odyssey Resources Inc.	Auclair	Au	G, Pg
82	33B03, 04		Goldcorp Inc. / Azimut Exploration Inc.	Wabanisk	Au-Ag-Cu-Zn-Pb-Mo	D(15:3234), G, Gs(h), GpEl(G), S
				Drill hole W-09-08 intersected three intervals with subeconomic grades, including 0.023% Cu, 0.39% Zn, 0.16% Pb, and 18.0 g/t Ag over 7.0 m (from 175.0 to 182.0 m).		
83	33B04, 05		Eastmain Resources Inc.	Clearwater	Au-Bi-Te	D(68:21276)
				Eastmain continued definition drilling on the 450 West zone of the Eau Claire deposit, Clearwater property. Multiple quartz-tourmaline veins were intersected, including several intervals at more than one ounce of gold per ton, commonly associated with tellurium and bismuth concentrations.		
84	32N14,15		Sirios Resources Inc. / Dios Exploration Inc.	Pontax-Lithium	Li	D(7:864), G, S
				The JV partners intersected in drill holes several lithium-bearing pegmatite dykes over 425 m strike length, including one interval grading 0.97% LiO <sub>2</sub> over 21.0 m in hole 09-05.		
85	33C01, 02, 07, 08		Eastmain Resources Inc.	Reservoir	Cu-Au-Ag	G, Gs(s), Pr
86	33C01		First Gold Exploration Inc.	Eastmain Lithium	Li	Pg, S
87	33C01, 32N15		Dios Exploration Inc.	Pontax-Diamond	Diamond	Gs(t)
88	32N14, 15, 33C01,02		Sirios Resources Inc.	Pontax	Au-Ag-Cu-Zn-Pb	Gs(r)
89	33C01, 02		Arianne Resources Inc.	Opinaca	Au	Pr, S
90	33C01, 02, 07, 08		Arianne Resources Inc. / SOQUEM INC.	H Lake	Au-Cu-Zn-Ag	G, Pr, S, T
91	33C02, 03, 06, 07		Arianne Resources Inc.	Wabamisk / Komo	Au-Cu-Zn-Li	Pr, S
				Discovery of a new gold showing (1.07 g/t Au) and a lithium occurrence (0.97% LiO <sub>2</sub> ) on the Komo project.		
92	33C02, 07		Virginia Mines Inc. / IAMGOLD-Québec Management Inc.	Anatacau / Wabamisk	Au	G, Gs(t), GpEl(G), GpMa(G), S

TABLE 5.2 - Exploration projects in the Baie-James and Nunavik regions in 2009

NOS	NTS	TOWNSHIP	COMPANIES / PROSPECTORS	PROJECT	COMMODITIES	EXPLORATION WORK <sup>(1)</sup>
93	33C03	Lithium One Inc.	James Bay Lithium	Li		D(84:12347), GpEl(G), GpMa(G), S
		The company conducted an aggressive drilling program to test about 15 different pegmatite dyke swarms with spodumene (lithium-rich mineral). Several intercepts ranging from 3.0 to 64.0 m length, with grades from 1.08% to 1.98% LiO <sub>2</sub> , were obtained along 1.2 km strike length.				
94	33B12, 33C09	<b>Goldcorp Inc. / Opinaca Mines Ltd</b>	<b>Éléonore</b>	<b>Au</b>		<b>D(20:19650), S, T</b>
		The company continued drilling in order to improve the continuity of mineralized zones and strengthen confidence in the 3D model for the Roberto gold deposit. Drill hole ELE-09-00639-W03, in the Bay area, yielded 198.0 g/t Au over 1.5 m (1134.5 - 1136.0 m), and 46.67 g/t Au over 2.3 m (1468.0 to 1470.30 m).				
95	33C09, 33B12	Eastmain Resources Inc. / Goldcorp Inc. (Mines Opinaca ltée) / Azimut Exploration Inc.	Éléonore South IV	Au		D(14:3697), G, Pr, S, T
		Drill results confirmed a strong gold geochemistry anomaly over 1 km in length in the JT Target area. Drill hole ES09-22 yielded 0.64 g/t Au over 17.5 m, including 3.73 g/t Au over 2.0 m, in aluminous sediments similar to the Roberto gold deposit on the Éléonore project (Goldcorp Inc.).				
96	33C08, 09, 10, 33B03, 06	Midland Exploration Inc.	Éléonore	Au		GpEm(A), GpMa(A), Pr
97	33C09	Beaufield Resources Inc.	Opinaca	Cu-Au-Ag-Mo		G, Cs(sl), S
98	33C10	Beaufield Resources Inc.	Opi-West	Au		Pg
99	33F02, 03, 06	Strateco Resources Inc.	Apple	U		Re
100	33F03	G. L. Géoservices inc.	Langeller	Au-Cu-Ni-Pd-Pt		Pg, S
101	33F04	Vanstar Mining Resources Inc.	Patica	Au-Cu-Zn		D(8:x)
102	33F05, 12	Auguya Mining Resources Inc. / Canadian Century Iron Ore Corporation	Duncan Lake	Fe		D(26:10456)
		About 30 km south of Radisson, the IV partners completed a first-phase drilling program on deposits 1, 2, 3, 4, and 5 on the Duncan project. Best results include an interval grading 25.45% Fe over 226.46 m in hole 33, and another in hole 52 grading 26.79% Fe over 130.91 m.				
103	33F06	Pro-Or Mining Resources Inc.	Menarik	Cr-Ni-Cu-Au-Pt-Pd		G, GpEl(G), Pr
104	33F09, 10	Virginia Mines Inc.	La Grande Sud	Au		D(x:x), G, Cs(t), Pr
105	33G03, 04	Dios Exploration Inc.	U2	U		Rsi
106	33G04	Pro-Or Mining Resources Inc.	Ewart	Au		G, Pr, S
107	33G05, 06, 07	Virginia Mines Inc.	Poste Lemoyne Extension	Au		D(20:2500), G, Cs(t), GpEl(S), GpMa(G), S, T
108	33G08, 33H05	Virginia Mines Inc. / Goldcorp Inc.	Corvet Est	Au		G, Cs(t), Pr
109	33G09, 33H12	Virginia Mines Inc. / Odyssey Resources Inc.	FCl	Au		G, Pr
110	33G16	Sirios Resources Inc.	Tilly	Mo-Cu-Au		G, Cs(t), Min
111	33H01, 02, 08	Midland Exploration Inc. / Agnico-Eagle Mines Ltd	Galinée	Cu-Zn-Au-Ag		G, Cs(t), GpEl(G), GpEm(G), Pr, S, T
112	33H07, 08, 09, 10	Midland Exploration Inc. / Agnico-Eagle Mines Ltd	LaSalle	Cu-Zn-Au-Ag		G, Cs(t), GpEl(C), GpEm(G), Pr, S, T
113	33H08, 09, 23E12	Virginia Mines Inc.	Noella-Nichicun	Au		G, Pr
114		Sirios Resources Inc.	Escale	Au		Gs(sl), Pr, S

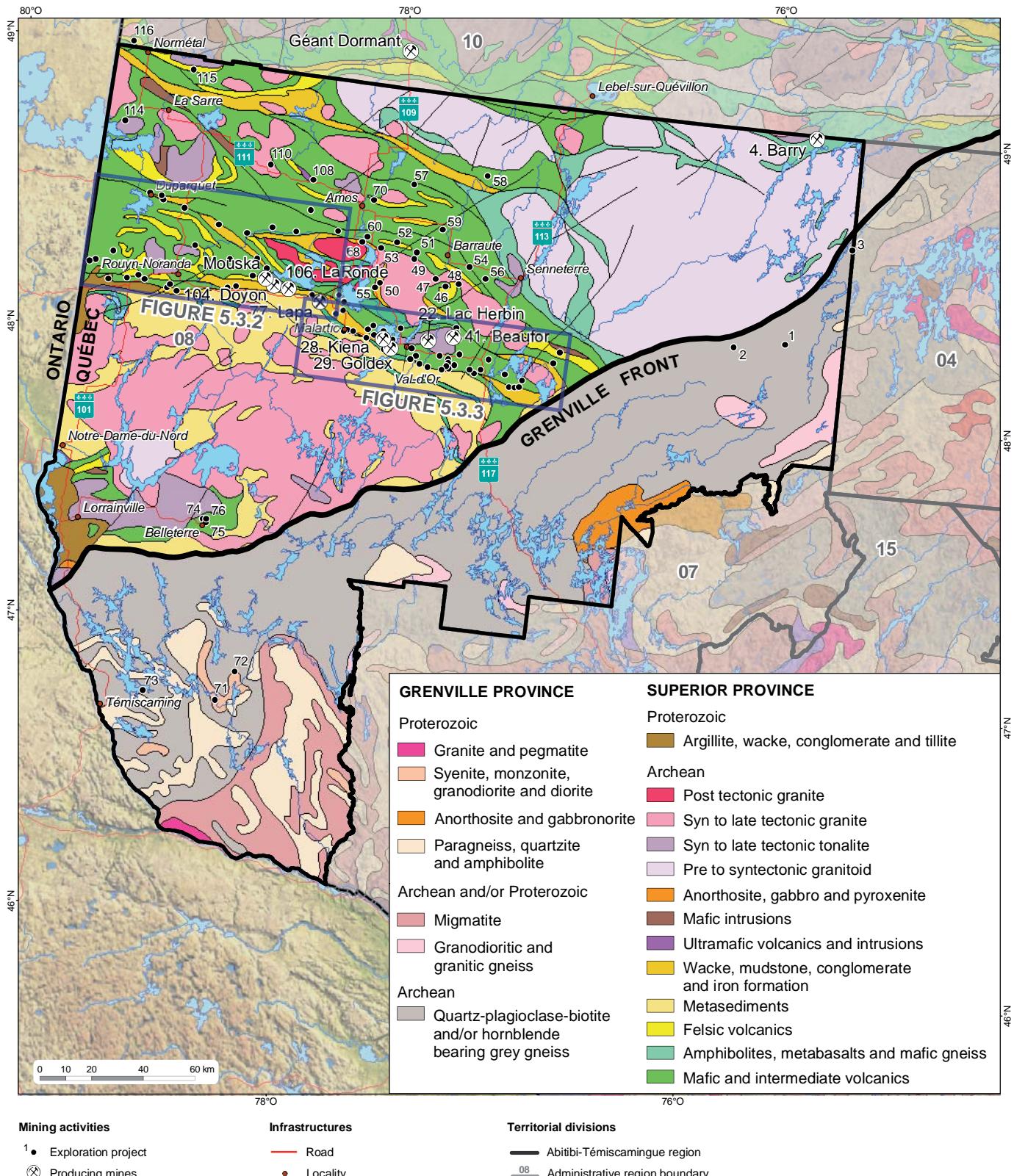
TABLE 5.2 - Exploration projects in the Baie-James and Nunavik regions in 2009

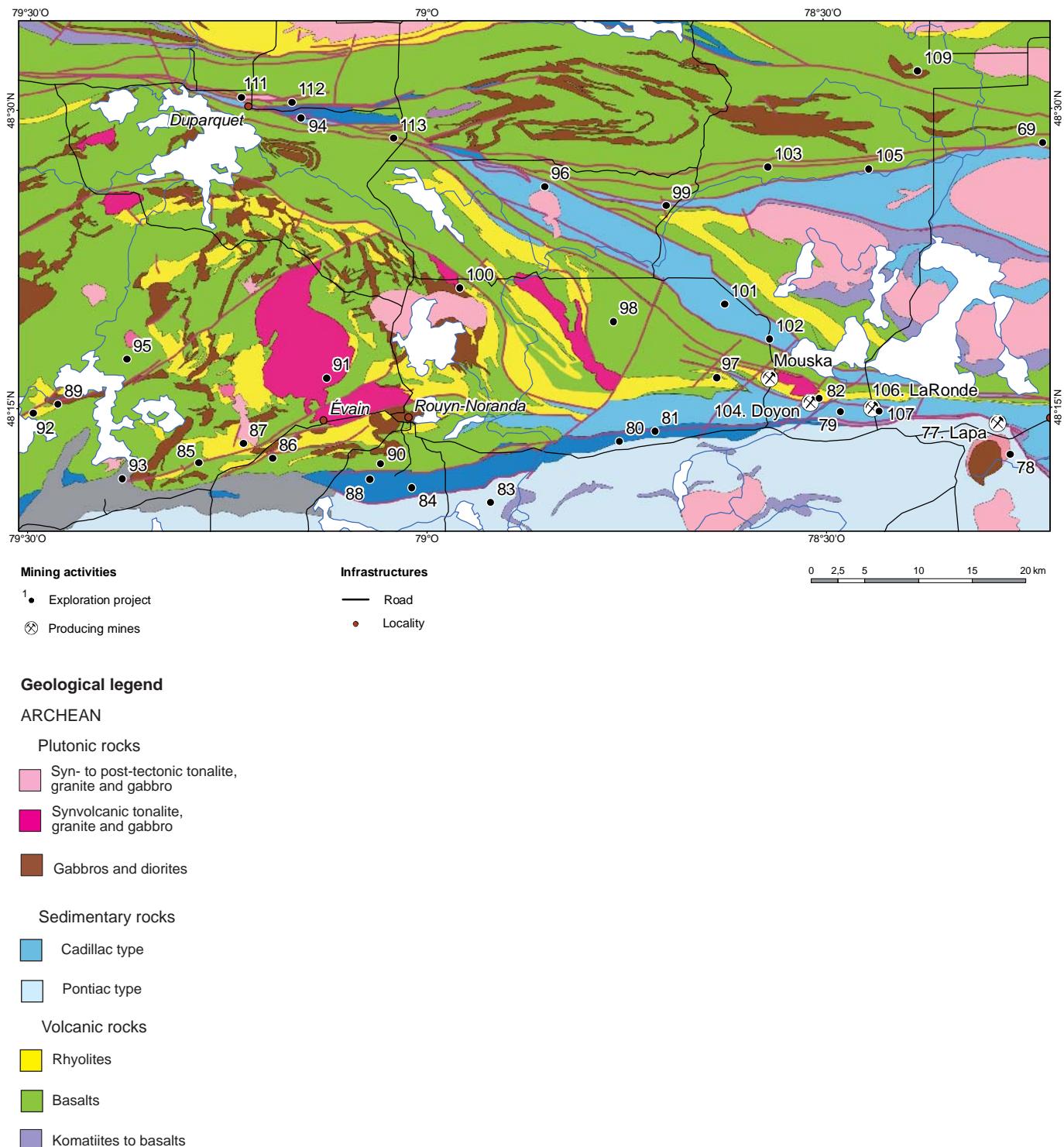
NOS	NTS	TOWNSHIP	COMPANIES / PROSPECTORS	PROJECT	COMMODITIES	EXPLORATION WORK <sup>(1)</sup>
115	33I02	Golden Tag Resources Ltd / Sirius Resources Inc.	Aquilon Main	Au		D(47:1000)
		The JV partners reported several drill intercepts with more than one ounce of gold per ton in the Lingo vein, following a series of vertical holes less than 100 m deep, drilled over a strike length of 40 m.				
116	23K13	Virginia Mines Inc.	Pau Lake	Au	G, S, T	
		A gold system was traced over more than 12 km strike length, in altered and sheared tonalitic intrusive rocks, with several surface showings that yielded grades from 3.2 to 25.8 g/t Au.				
<b>FAR NORTH (figure 5.2)</b>						
117	33K16, 33N01,02	Niocan Inc.	Great Whale Iron	Fe	Met, S	
118	23K13, 23L16, 23M01	Sirios Resources Inc.	Cognac	Au-Cu-Ag-Zn-Pb	Pg	
119	23M06, 09, 10, 11,	Virginia Mines Inc.	Gayot Lake	Ni-Cu-Pt-Pd	G	
120	23M15, 16	Fancamp Exploration Ltd / Sheridan Platinum Group Ltd	Dieter Lake	U	GpMa(A), GpRa(A)	
121	24C04	Areva Québec Inc. / Waseco Resources Inc.	Pons Lake	U	G, Pg	
122	34G12, 24F02, 04, 23C11, 12, 13, 14, 15, 24C04, 12, 24J10, 23M06, 11, 14, 24D14, 23D16, 24F01, 33N03	Azimut Exploration Inc. / Kativik Resources Inc.	Kativik	U-REE	Pg, S	
<b>LABRADOR TROUGH (figure 5.2)</b>						
123	23O03	New Millennium Capital Corporation	KeMag	Fe	TE	
124	23O03, 23J14, 15	New Millennium Capital Corporation / Tata Steel Global Minerals Holdings Plc Ltd	DSO	Fe	D(x:1617), S	
		Work continued to complete a feasibility study on the DSO project, located along the provincial border between Newfoundland-and-Labrador and Québec. Studies confirmed the structure, stratigraphy, mineralization, and iron grades reported by the Iron Ore Company of Canada for 3 deposits, namely Goodwood, Sunny 1, and Ferriman 4.				
125	23O04	Western Troy Capital Resources Inc.	Schefferville Gold	Au-Ag-Zn-Pb	D(8:800)	
		About 50 km northwest of Schefferville, in the Ashuanipi Subprovince, the company reported new gold and base metal values in iron formations on its Schefferville Gold property. Hole no.4 yielded 5.56 g/t Au over 11.0 m, including 10.24 g/t Au over 2.03 m, and 8.56% Pb, 1.96% Zn, and 27.67 g/t Ag over 3.05 m.				
126	24C09, 10	Areva Québec Inc.	Minowean	U	D(8:1508), G, GpEm(A), S	
127	24C08, 23B05	Areva Québec Inc.	Du Chambon	U	G, Pr	
128	24C01, 08	Areva Québec Inc.	Du Portage	U	D(6:1320), G, GpEm(A), S	
129	24C16	Commerce Resources Corporation	Eldor	Nb-Ta-U-REE	G, Pr, S	

TABLE 5.2 - Exploration projects in the Baie-James and Nunavik regions in 2009

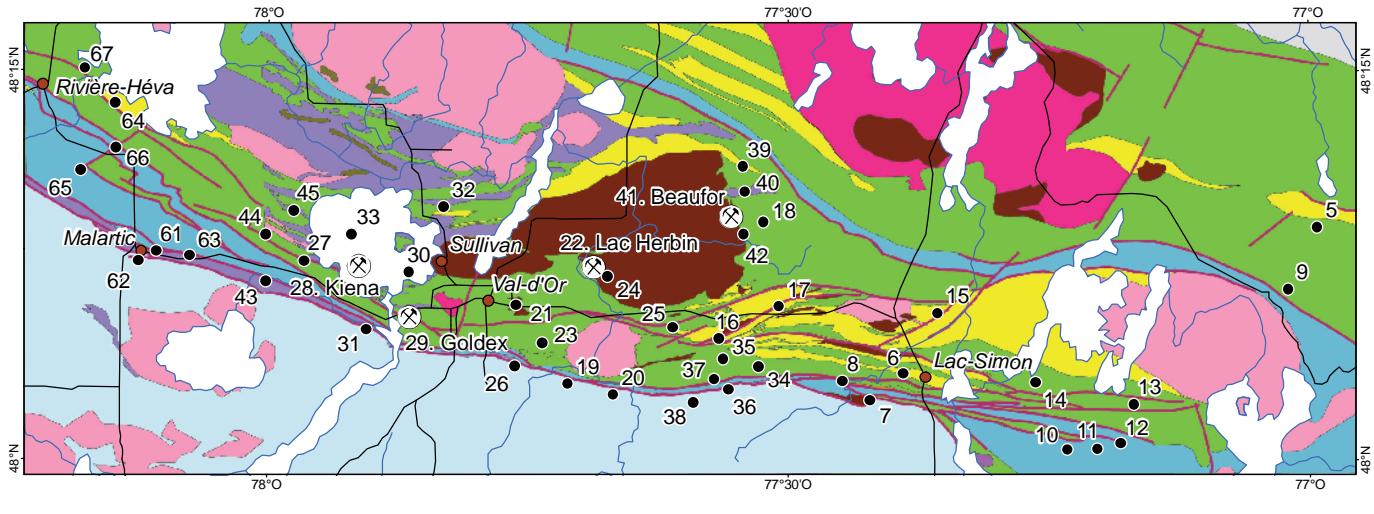
NOS	NTS	TOWNSHIP	COMPANIES / PROSPECTORS	PROJECT	COMMODITIES	EXPLORATION WORK <sup>(1)</sup>
<b>UNGAVA TROUGH (figure 5.2)</b>						
130	35G, 35H		Goldbrook Ventures Inc. /Jilin Jien Nickel Industry Co. Ltd	Raglan	Ni-Cu-Co-PGE	D(87:16180), G, CpEm(B, A), S
			About 80 km southeast of the Raglan mine, the partners continued drilling on the Mystery, Mystery North, Timtu, Delta Northeast and Dragon zones on their Raglan property. Drill hole MYS09-003 yielded grades of 0.78% Ni, 1.19% Cu, 0.04% Co, and 4.10 g/t PGE + Au over 95.4 m (Mystery Main zone), and drill hole TIM09-17 encountered a 21.0-m interval grading 0.78% Ni, 0.64% Cu, and 2.45 g/t PGE + Au (Timtu zone).			
131	35G09, 35H11, 12	Xstrata Nickel		Raglan	Ni-Cu-Co-PGE	D(114:35611), CpEm(B)
132	35F08, 35G05, 06	Anglo American Exploration (Canada) Ltd / Knight Resources Ltd	West Raglan		Ni-Cu-Co-PGE	G, Gs(t), GpEm(A, G), GpMa(G), Pr
133	35G07, 08	Resolve Ventures Inc.	Ungava		Ni-Cu-Co-PGE	D(2:284), G, Cs(r), GpEm(G), Pr
134	35H06, 07,08	Pure Nickel Inc.	SRI		Ni-Cu-Co-PGE	G, Pr
<b>TORNGAT CORE ZONE (figure 5.2)</b>						
135	24P04, 24I10, 11, 13, 14, 15	Areva Québec Inc.	Cage	U		D(43:11003), G, CpEm(G), S
136	24A08	Quest Uranium Corporation	Strange Lake	REE- Zr- Nb-Be		D(54:4271), G, GpMa(A), GpRa(A), Pr, S, T
			In the Rivière George area, the company extended the strike length of mineralization along the B-zone to a minimum of 1.1 km. Several drill holes yielded high-grade REE and Y-bearing intervals from 1.05% to 2.52% over vertical thicknesses ranging from 6 to 66 m.			
137	23P16, 24A01	Quest Uranium Corporation	Nanuk	U		D(2:300), G
138	13M04, 23P01	Quest Uranium Corporation	Misery Lake	REE-Zr-Nb-Ti-Fe		G, GpMa(A), GpRa(A), Pr, S, T
139	24I06, 07	Azimut Exploration Inc.	Daniel Lake	U	Pg, S	
140	24I05, 06, 11, 12, 24I09	Azimut Exploration Inc.	North Rae	U	Pg, S	

1. See legend of abbreviations and meaning of bold type in Appendix I





**FIGURE 5.3.2.** Exploration projects in the Abitibi-Témiscamingue administrative region, Rouyn-La Sarre-Témiscamingue area in 2009.



#### Mining activities

- 1 ● Exploration project
- ⊗ Producing mines

#### Infrastructures

- Road
- Locality

0 2 4 8 12 16 km

#### Geological legend

##### ARCHEAN

###### Plutonic rocks

- Syn- to post-tectonic tonalite, granite and gabbro
- Synvolcanic tonalite, granite and gabbro

- Gabbros and diorites

###### Metamorphic rocks

- Gneisses (derived from plutonic rocks)

###### Sedimentary rocks

- Cadillac type

- Pontiac type

###### Volcanic rocks

- Rhyolites

- Basalts

- Komatiites to basalts

**FIGURE 5.3.3.** Exploration projects in the Abitibi-Témiscamingue administrative region, Val-d'Or-Amos area in 2009.

TABLE 5.3 - Exploration projects in the Abitibi-Témiscamingue administrative region in 2009

Nos	NTS	TOWNSHIPS	COMPANIES / PROSPECTORS	PROJECTS	COMMODITIES	EXPLORATION WORK <sup>(1)</sup>
Eastern part of region 08: Val-d'Or - Amos area						
1	32B04, 05	Baudin, Bourgmont	Cartier Resources Inc.	Decorta	Au-Cu-Zn	Gs(t)
2	32B04, 05, 32C01	Baudin, Trevet	Cartier Resources Inc.	Cadillac Extension	Au-Cu-Zn	Gs(t)
3	32B11, 12	Deschamps, Juneau, Hanotaux	Threegold Resources Inc.	Mercier	Cu-REE	S, D(13:4916)
In the Mercier alkaline intrusive complex, drill holes intersected zones enriched in REE (2.02% $\text{REE}_2\text{O}_3$ , drill hole MER08-04) and strontium (2.21% $\text{Sr}_t$ , drill hole MER08-04).						
4	32B13, 32G04	Barry, Urban	<b>Metanor Resources Inc.</b>	<b>Barry Mine</b>	<b>Au</b>	<b>D(x:20 000), Re, S, TE</b>
	Drill holes intersected gold-bearing intervals along the extensions of the Main zone, mined in the Barry open pit. Drill hole MB-09-270 intersected a wide gold interval (4.86 g/t Au over 27.0 m) to the south, between the Main zone and the West zone.					
5	32C02, 03	Tavernier, Pershing	Normabec Mining Resources Ltd / First Gold Exploration Inc.	Matchi-Manitou	Base metals	D(x:x), GpEm(C), GpMa(G), TE
6	32C03	Louvicourt	Alexandria Minerals Corporation	Sleepy	Au	D(x:3000), Re
	Drill hole IAX-09-49 intersected a gold-bearing zone (4.03 g/t Au over 11.9 m) in the Vicours gabbroic sill, which hosts the former Signal II gold mine, located further east. Inferred resources are estimated at 1.56 Mt grading 3.0 g/t Au, based on a cut-off grade of 2.0 g/t Au.					
7	32C03	Louvicourt	Alexandria Minerals Corporation	Bloc Sud Trivio	Au	D(x:x)
8	32C03	Louvicourt	Alexandria Minerals Corporation	Trivio	Au	G, GpEm(G), S, T
9	32C03	Pershing	X-Ore Resources Inc. / First Gold Exploration Inc.	Croinor 1	Au	FM, Re
	Drilling results since 2007 have led to a resource estimate. Based on a cut-off grade of 5.0 g/t Au, measured and indicated resources stand at 814,228 t at 9.11 g/t Au. Gold mineralization occurs in 23 distinct zones consisting of quartz veins and their altered, pyritized wall rocks, within a diorite sill.					
10	32C03	Vauquelin	Plato Gold Corporation / Globex Mining Enterprises Inc.	Nordeau West	Au	D(x:x), Re
	Recent drilling led to a new measured and indicated resource estimate totalling 225,342 t at 4.17 g/t Au, based on a cut-off grade of 2.75 g/t Au. Gold mineralization is hosted in shear zones with disseminated pyrite and quartz veining.					
11	32C03	Vauquelin	Plato Gold Corporation / Globex Mining Enterprises Inc.	Nordeau East	Au	D(14:6000)
	Drill hole NE-09-01 intersected 5.5 m grading 14.35 g/t Au. Gold is hosted in quartz-sulphide veins (arsenopyrite-pyrite-pyrrhotite).					
12	32C03	Vauquelin	Plato Gold Corporation / Globex Mining Enterprises Inc.	Bateman	Au	D(5:1500)
13	32C03	Vauquelin	Golden Share Mining Corporation	Forsan	Au	D(11:739), Re, TE
	Drill hole GSH-09-18 encountered a 4.0-m interval grading 56.86 g/t Au with quartz-pyrite-tourmaline veining at the contact between volcaniclastic rocks and a felsic porphyry dyke. Based on a cut-off grade of 2.5 g/t Au, inferred resources are estimated at 132,000 t at a grade of 3.52 g/t Au.					
14	32C03	Vauquelin	Threegold Resources Inc. / P.T. Coyle	South Bay	Au	S
15	32C03	Vauquelin	Galahad Metals Inc. / P.A. Bigué	Regcourt	Au	TE
16	32C03, 04	Bourlamaque, Louvicourt	Alexis Minerals Corporation	Dunraine	Ag-Au-Zn	D(2:2183), G, GpEm(B), Gs(r)
	A Au-Ag-Zn mineralized zone, associated with a garnet-magnetite-rich alteration zone, was recognized in drill holes. Best results include 9.66 g/t Au, 512 g/t Ag, and 1.32% Zn over 0.5 m in drill hole 17317-58A.					
17	32C03, 04	Bourlamaque, Louvicourt	Alexis Minerals Corporation / Novicourt Inc.	Louvet	Base metals	GpEm(G), Pr

TABLE 5.3 - Exploration projects in the Abitibi-Témiscamingue administrative region in 2009

Nos	NTS	TOWNSHIPS	COMPANIES / PROSPECTORS	PROJECTS	COMMODITIES	EXPLORATION WORK <sup>(1)</sup>
18	32C03, 04	Pascalis, Louvicourt	Adventure Gold Inc.	Pascalis-Colombière	Au	D(12:3334)
				Several grab samples collected from new showings and historic occurrences yielded gold values (as high as 12.4 g/t on the Pascale showing). Drill holes also encountered mineralized zones under known showings (ex: 3.2 g/t Au over 14.2 m in drill hole PC-09-05 under the Highway showing).		
19	32C04	Bourlamaque	Alexandria Minerals Corporation	Orenada	Au	D(x:x), Re
				Measured and indicated resources in zones 2 and 4 total 4.598 Mt at 1.82 g/t Au from 0 to 250 m depth, based on a cut-off grade of 1 g/t Au. Gold mineralization, enclosed in the Cadillac Tectonic Zone, consists of deformed quartz-carbonate +/-tourmaline veining in a quartz-sericite-carbonate schist. Gold is associated with pyrite and arsenopyrite.		
20	32C04	Bourlamaque	Alexandria Minerals Corporation	Oramaque	Au	D(x:x), C, GpEm(C), S, T
				The five best grades obtained from gabbro samples with quartz veining range from 2.87 to 37.3 g/t Au.		
21	32C04	Bourlamaque	Century Mining Corporation	Lamaque Complex	Au	D(13:6748), Re, TE
				Operations at the Sigma pit ceased on November 5, 2007. Mining had resumed in April 2007 in underground stopes at the Lamaque mine, closed in 1984. Underground operations at Lamaque were suspended on July 2, 2008. At Lamaque, gold occurs is shallowly dipping auriferous quartz veins ranging from 5 to 90 cm in thickness. Data compilation and modeling of resources under the Sigma pit were updated in 2009, which led to an increase in measured and indicated resources, now estimated at 6.5 Mt at 5.02 g/t Au. Reserves remain at 7.73 Mt grading 4.56 g/t Au.		
22	32C04	Bourlamaque	Alexis Minerals Corporation	Lac Herbin Mine	Au	D(x:22:946), Re
				An extensive drilling program led to a substantial increase in reserves at the mine, to 617,374 t at 7.36 g/t Au. The estimated mine life is thus extended to a minimum of 5 years. Gold-bearing quartz-pyrite veins are hosted in 7 shear zones (HW, WE, HW2, Bonanza, S3, LH, and S1) that cross-cut the Bourlamaque Batholith. A new zone (Lac Herbin West) was identified about 1 km west of the mine, where best results include 8.4 g/t Au over 1.8 m (drill hole AMAR-97).		
23	32C04	Bourlamaque	Kalahari Resources Inc.	Lamaque	Au	G, GpEm(A, G), Gs(sl), TE
24	32C04	Bourlamaque	Alexis Minerals Corporation	Aurbel	Au	D(66:27 151), GpEm(B)
				A deep drilling program underneath the former Dumont mine led to the identification of gold-bearing quartz-pyrite-tourmaline veins along the depth extension of the Dumont North shear zone. Best grades include 71.63 g/t Au over 2.6 m in drill hole AMAR-106.		
25	32C04	Bourlamaque	Alexis Minerals Corporation	Norbec Manitou	Base metals	D(1:2306), GpEm(B), Gs(r)
26	32C04	Bourlamaque	Kalahari Resources Inc. / Alexandria Minerals Corporation	Airport	Au	TE
27	32C04	Dubuisson	Knick Exploration Inc.	East-West Gold	Au	D(x:x), TE
28	32C04	Dubuisson	Wesdome Gold Mines Ltd	Kiena Complex	Au	D(x:x)
				Discovery of a new gold zone (Schist zone) about 30 m north of the VC zone currently being mined. Best results include 4.7 m grading 7.13 g/t Au in drill hole U-4610. The best drilling results obtained under zone S-50 are: 14.7 m at a grade of 4.17 g/t Au in drill hole U-4566.		
29	32C04	Dubuisson	Agnico-Eagle Mines Ltd	Goldex	Au-Ag	D(x:x), Met
				Proven and probable reserves total 1.6 million ounces, from 23.8 Mt at 2.1 g/t Au. A project to increase daily output to 8,000 tpd is underway, as well as development work in the M zone.		
30	32C04	Dubuisson	Wesdome Gold Mines Ltd	Dubuisson	Au	D(5:25 000)
				About 3 km east of the Kiena mine, a new gold zone (Dubuisson zone) was discovered in 2008. Gold is hosted in quartz-albite-tourmaline-pyrite veinlets in albitized diorites and fractured feldspar porphyries. Best results include 10.3 m grading 26.1 g/t Au.		
31	32C04	Dubuisson	Adventure Gold Inc.	Dubuisson	Au	TE
32	32C04	Dubuisson, Vassan	Alexandria Minerals Corporation / NioGold Mining Corporation	Siscoe Est / Vassan	Au	D(6:2588), TE
				Drill holes intersected sulphide zones and quartz vein stockworks, near the west contact of the Bourlamaque Batholith near the former Sullivan mine. The best drill intercept graded 43.67 g/t Au over 1.9 m (drill hole SE-09-004).		

TABLE 5.3 - Exploration projects in the Abitibi-Témiscamingue administrative region in 2009

Nos	NTS	TOWNSHIPS	COMPANIES / PROSPECTORS	PROJECTS	COMMODITIES	EXPLORATION WORK <sup>(1)</sup>
33	32C04	Dubuisson, Vassan	Wesdome Gold Mines Ltd	Wesdome	Au	D(x:x), Re, TE
						A new resource estimate based on 21 gold-bearing zones, located 4 km north of the Klena mine, established an inferred resource of 1,563,300 t at 7.97 g/t Au and an indicated resource of 275,800 t at 7.73 g/t Au. Gold is hosted in quartz-pyrite veining enclosed in shear zones.
34	32C04	Louvicourt	Adventure Gold Inc.	Lapaska	Au	Gs, S, TE
35	32C04	Louvicourt	Megastar Development Corp. / Eloro Resources Ltd	Simkar	Au	S(x:x), TE
36	32C04	Louvicourt, Bourlamaque	Alexandria Minerals Corporation	Akasaba	Au-Ag-Cu	D(11:x), C, GpEm(B, G), S, T
						Drill hole LAX-09-53 obtained a grade of 4.22 g/t Au over 10.35 m along the down-plunge extensions of the semi-massive sulphide zone in Lens D at the former Akasaba mine. Surface samples yielded maximum grades of 26.90 g/t Au, 55 g/t Ag, and 4.5% Cu.
37	32C04	Louvicourt, Bourlamaque	Alexandria Minerals Corporation	Valdora	Au-Ag-Cu	G, GpEm(G), S, T
						Six surface samples collected in quartz veins and altered volcanic rocks yielded maximum grades of 1.85% Cu and 26.0 g/t Au.
38	32C04	Louvicourt, Bourlamaque	Alexandria Minerals Corporation	Sabourin	Au-Ag-Cu	G, GpEm(G), S, T
39	32C04	Pascalis	Adventure Gold Inc. / P Bambic	Senore	Au	D(3:681)
						Drill hole SE-08-16 intersected a new mineralized zone (zone 16; 8.7 g/t Au over 1.2 m), located 550 m north of the Resenor gold deposit.
40	32C04	Pascalis	Adventure Gold Inc.	Beaufor-North	Au	D(x:x)
41	32C04	Pascalis	Richmont Mines Inc. / Louvem Mines Inc.	Beaufor Mine	Au-Ag	D(60:25 440)
						Major drilling program at depth, mainly targeting the extensions of zones C and Q and areas near the Perron fault, in order to increase reserves and resources at the mine.
42	32C04	Pascalis, Senneville, Louvicourt	Richmont Mines Inc. / Louvem Mines Inc.	Perron-Beaufor-Courvan-Pascalis	Au	D(16:4700)
43	32C04, 32D01	Dubuisson, Fournière	<b>Northern Star Mining Corporation</b>	<b>Midway (Malarctic Goldfields)</b>	<b>Au</b>	<b>D(37:5757), Ramp+Drifts.</b>
						An exploration decline and a bulk sampling program in the Chabela zone, enclosed in the Cadillac Tectonic Zone, are underway. Drill holes also intersected gold grades in the Briar zone (12.6 m at 16.8 g/t Au, drill hole 181) and the L zone (11.4 m at 7.29 g/t Au, drill hole 170).
44	32C04, 32D01	Malarctic, Fournière, Dubuisson, Vassan	NioGold Mining Corporation / Thundermin Resources Inc. / Northern Star Mining Corporation / Breakwater Resources Ltd	Malarctic Block	Au	D(23:5890), Pr, Re, TE
						Drill hole MH-08-006 yielded a grade of 4.52 g/t Au over 3.6 m in the Norbenite shear zone, between the Kierens deposit and the H zone.
45	32C04, 32D01	Vassan, Malarctic	Northern Star Mining Corporation	Callahan	Au	D(14:4150), GpEm, GpMa
46	32C05	Fiedmont	Lounor Exploration Inc.	Fiedmont	Pt-Pd	D(x:x)
47	32C05	Fiedmont	Pacific North West Capital Corporation / Kinbauri Gold Corporation	Fiedmont PGM	PGM	D(10:1500), Gs(h)
						The mineralized zone consists of disseminated sulphides in silicified gabbro. Best drilling results are: 302 ppb Pt and 695 ppb Pd over 1.5 m.
48	32C05	Fiedmont	<b>Northern Star Mining Corporation / Britannica Resources Corporation</b>	<b>McKenzie-Break</b>	<b>Au</b>	<b>FM, Ramp</b>
						Drill holes intersected zone 4 near surface; best results include 9.22 g/t Au over 1.0 m (drill hole 143). Development of an exploration ramp began in October.

TABLE 5.3 - Exploration projects in the Abitibi-Témiscamingue administrative region in 2009

Nos	NTS	TOWNSHIPS	COMPANIES / PROSPECTORS	PROJECTS	COMMODITIES	EXPLORATION WORK <sup>(1)</sup>
49	32C05	La Corne	<b>Canada Lithium Corporation</b>	<b>Québec Lithium</b>	<b>Li</b>	<b>B(20:x), D(28:7000), Env, FM, Met, TE</b>
50	32C05	La Corne	Mineral Hill Industries Ltd	Chubb	Li	GpEm(G), GpMa(G), Cs(r)
51	32C05	Landrienne	Jacques Frigon	Landrienne	Ni	GpEm, GpMa
52	32C05	Landrienne	Cogitore Resources Inc.	Landrienne	Base metals	TE
53	32C05	Landrienne	Mineral Hill Industries Ltd	Athona	Mo	S
54	32C05, 06	Courville	Golden Valley Mines Ltd / Kalahari Resources Inc.	Perestroika	Au	D(2:400), T E
			New assays from drill hole GPS-07-01, drilled in 2007, outlined two new gold intervals, with grades of 4.35 g/t Au over 0.24 m, and 10.05 g/t Au over 0.09 m.			
55	32C05, 32D08	Malartic, La Motte, La Corne, Vassan	Romios Gold Resources Inc.	La Corne Molybdenum	Mo, Bi, Li	Re, S
56	32C06	Courville	<b>Pershimco Resources Inc.</b>	<b>Courville</b>	<b>Au - Tonalite</b>	<b>B(x:2500)</b>
57	32C12	Duvernay	Jacques Frigon	Duvernay	Au	GpMa, S, T
58	32C11, 12, 13, 14	Despinassy, Rochebaucourt	Pacific North West Capital Corporation / Alto Ventures Ltd	Destiny	Au	D(14:5600), GpEm(G)
59	32C12	Barraute	Abcourt Mines Inc.	Abcourt-Barvau	Ag-Zn	Met, TE
60	32C05, 32D08	Figuery	Cartier Resources Inc.	Rambull	Au	Gs(r), S, T
61	32D01	Fournière	Osisko Mining Corporation	South Barnat	Au	D(x:x), Re
62	32D01	Fournière	<b>Osisko Mining Corporation</b>	<b>Canadian Malartic</b>	<b>Au</b>	<b>D(x:x), Re, T</b>

Metallurgical tests were completed, and a pre-feasibility study and a drilling program were undertaken in the fall of 2009, in preparation for a feasibility study in 2010 on the possible reopening of the former Québec Lithium mine. A 20-t bulk sample was collected from existing drill core for metallurgical tests.

A drilling program (19 holes totalling 5,738 m) conducted in late 2008, identified extensive zones with molybdenum, bismuth and lithium mineralization in a granitic unit that hosts the former La Corne Molybdenum mine. Best results include 0.0787% MoS<sub>2</sub> and 0.0064% Bi over 168.3 m (drill hole RQ-08-07).

**56**      **32C06**      **Courville**      **Pershimco Resources Inc.**      **Courville**      **Au - Tonalite**      **B(x:2500)**

Processing of a 2,500-t bulk sample of tonalite, used as gold-bearing flux at the Horne Smelter (Xstrata Copper Canada), yielded grades of 1.011 g/t Au and 5.2 g/t Ag.

**57**      **32C12**      **Duvernay**      **Jacques Frigon**      **Duvernay**      **Au**      **GpMa, S, T**

**58**      **32C11, 12, 13,  
14**      **Despinassy,  
Rochebaucourt**      **Pacific North West Capital Corporation / Alto Ventures Ltd**      **Destiny**      **Au**      **D(14:5600), GpEm(G)**

Gold mineralization in the DAC deposit consists of quartz veins injected in wide shear zones. Best results include an interval grading 44.39 g/t Au over 0.5 m in drill hole DES09-120.

**59**      **32C12**      **Barraute**      **Abcourt Mines Inc.**      **Abcourt-Barvau**      **Ag-Zn**      **Met, TE**

**60**      **32C05, 32D08**      **Figuery**      **Cartier Resources Inc.**      **Rambull**      **Au**      **Gs(r), S, T**

Six new strippings uncovered several new mineralized zones with quartz-ankerite-chlorite veining hosted in altered granodiorite. Best results include 10.88 g/t Au over 1 m in trench RAM-09-TR-02.

**61**      **32D01**      **Fournière**      **Osisko Mining Corporation**      **South Barnat**      **Au**      **D(x:x), Re**

A detailed diamond drilling program led to a measured and indicated resource estimate totalling 29.0 Mt at 2.09 g/t Au, based on a cut-off grade of 1.0 g/t Au. Gold mineralization, located along the south part of a segment of the Cadillac Fault, consists of multiple tabular zones hosted in silicified metasedimentary rocks with disseminated pyrite, in porphyries and altered ultramafic rocks.

**62**      **32D01**      **Fournière**      **Osisko Mining Corporation**      **Canadian Malartic**      **Au**      **D(x:x), Re, T**

On August 20, 2009, the MRNF announced the issuance of a certificate authorizing Osisko Mining Corporation to develop an open pit mine at the Canadian Malartic gold project. The projected rate of production is 591,000 ounces of gold per year. Based on a cut-off grade of 0.36 g/t Au, reserves are estimated at 183.3 Mt at 1.07 g/t Au, with indicated resources of 54 Mt at 0.81 g/t Au and inferred resources of 37.4 Mt at 0.60 g/t Au, in metasedimentary rocks and granodiorite with disseminated pyrite. Relocation of 170 homes affected by the project began on July 9, 2008 and continued throughout 2009.

TABLE 5.3 - Exploration projects in the Abitibi-Témiscamingue administrative region in 2009

Nº	NTS	TOWNSHIPS	COMPANIES / PROSPECTORS	PROJECTS	COMMODITIES	EXPLORATION WORK <sup>(1)</sup>
63	32D01	Fournière	Oisiko Mining Corporation / Golden Valley Mines Ltd	Malaritic CHL, Jeffrey zone	Au	D(34;5;738)
			Best results: 1.2 g/t Au over 86.9 m (drill hole CHL08-2063). Gold mineralization is hosted in quartz-feldspar porphyry dykes with disseminated pyrite, in contact with an ultramafic flow-dominated sequence.			
64	32D01	Malaritic	Golden Share Mining Corporation	Malaritic Lakeshore	Au	D(18;1396), GpEm(G), TE
			Within the Norbenite-Marbleite shear zone, zone 66 composed of sheared basalt injected with quartz-calcite-pyrite veinlets was discovered in drill hole (1.19 g/t Au over 0.55 m, drill hole ML-08-11).			
65	32D01	Malaritic	Arianne Resources Inc.	Héva	Au	C, Pr, S
			Among the 52 samples collected in metasedimentary rocks of the Cadillac Group, the best grade is 9.12 g/t Au, from a sandstone with 5% fine-grained arsenopyrite.			
66	32D01	Malaritic	Amseco Exploration Ltd / J.A.G. Mines Ltd	Malaritic	Au	Te
67	32D01, 08	Malaritic, Cadillac	NioCold Mining Corporation	Héva	Au	GpMa(A), TE
68	32D08	Figuery	Mineral Hill Industries Ltd	International	Li	GpEm(G), GpMa(G), T
69	32D08	Figuery, Villemontel	Cartier Resources Inc.	Newconex West	Au	Pr, TE
70	32D09	Dalquier	Abcourt Mines Inc.	Jonpol	Base metals	D(x;1329)
<b>Western part of region 08: Rouyn - La Sarre - Témiscamingue area</b>						
71	31L10, 14, 15	Gendreau, Mercier	Matamec Exploration inc.	Zeus	REE	D(31;2342), T
			Sampling in a series of trenches yielded the following assay results: T-1: 33.0 m at 1.491% REE <sub>2</sub> O <sub>3</sub> ; T-3: 24.2 m at 0.723% REE <sub>2</sub> O <sub>3</sub> ; T-11: 8.0 m at 0.718% REE <sub>2</sub> O <sub>3</sub> ; T-8: 18 m at 1.011% REE <sub>2</sub> O <sub>3</sub> .			
72	31L15, 16, 31M01, 02	Booth, McLachlin, Senezergues	Aurizon Mines Ltd	Kipawa	Au-REE	Gs(t)
73	31M	Atwater	Hinterland Metals Inc.	Kipawa REE	REE-Y-Zr-Au	Gs(sl)
74	31M07	Guillet, Blondeau	Conway Resources Inc.	Conway Paquin	Au	Met, S
			The company conducted mineralogical tests on the Conway and Paquin veins. A sample weighing 527.7 kg from the Conway vein yielded an average grade of 18.6 g/t Au and 69.4 g/t Ag. The company announced plans to collect a 3,000-kg sample from the two veins.			
75	31M07	Guillet	J.A.G. Mines Ltd	Aubelle - Belleteerre	Au-Ag-Cu-Zn	D(14;4254), T
76	31M07	Guillet	Conway Resources Inc.	Belleterre Mine	Au	D(x;x)
			The results of a drilling program conducted in 2008 were announced in 2009, including a 2.01-m section in drill hole B08-01 grading 18.38 g/t Au.			
77	32D01	Cadillac	Agnico-Eagle Mines Ltd	Lapa	Au	Construction, D(14;4920)
			Commercial production achieved in May 2009. The ore deposit contains proven and probable reserves of 3.8 Mt at a grade of 8.9 g/t Au. The expected mine life is 8 years.			
78	32D01	Cadillac	Midland Exploration Inc. / Agnico-Eagle Mines Ltd	Maritime Cadillac	Au	D(4;3062)
			Four diamond drill holes completed, including drill hole 141-09-22A, which intersected 2.0 m grading 2.1 g/t Au.			
79	32D01	Bousquet	Agnico-Eagle Mines Ltd	Ellison	Au	D(1;1500)
80	32D02	Joannès	Aurizon Mines Ltd	Joanna	Au	Re
			The company received positive results from the pre-feasibility study. The deposit (Hosco and Heva zones) contains measured and indicated resources of 34.5 Mt at 1.4 g/t Au and inferred resources of 29.8 Mt at 1.4 g/t Au. The planned open pit mine is expected to operate at a rate of 8,500 tons per day and produce 110,000 ounces of gold per year over a mine life of 8.3 years. The company launched a feasibility study on the project.			

TABLE 5.3 - Exploration projects in the Abitibi-Témiscamingue administrative region in 2009

Nos	NTS	TOWNSHIPS	COMPANIES / PROSPECTORS	PROJECTS	COMMODITIES	EXPLORATION WORK <sup>(1)</sup>
81	32D02	Joannès	Aurizon Mines Ltd / Alexandria Minerals Corporation	Joannes Township	Au	D(x:x)
			New resource estimate: 1.08 Mt inferred resources at an average grade of 1.2 g/t Au, based on a cut-off grade of 0.5 g/t Au.			
82	32D02	Bousquet	<b>IAMGOLD-Québec Management Inc.</b>	<b>Westwood</b>	<b>Au</b>	<b>Construction, TE</b>
			The company advanced construction of surface infrastructure - headframe, sinking of exploration shaft, 1,635 m of access ramp to reach the Warrenmac deposit - during the year. A preliminary study was completed. The various mineralized zones reportedly contain 9.4 Mt of inferred resources at a grade of 11.4 g/t Au. The start-up of production is scheduled for 2013.			
83	32D02	Rouyn	Threegold Resources Inc.	Adanac	Au	D(22:4768)
84	32D02, 03	Rouyn	Gold Bullion Development Corporation	Granada Mine	Au	D(11:1026)
85	32D03	Beauchastel	<b>Richmont Mines Inc.</b>	<b>Francoeur</b>	<b>Au</b>	<b>D(14:7434)</b>
			Dewatering of the former mine, closed since 2001, and refurbishing of infrastructure should be completed in the first quarter of 2010. Drilling program totalling 7,444 m completed in October; results include a 2,144-m section grading 7.75 g/t Au. The start-up of production is planned for 2011, at an anticipated rate of 35,000 ounces per year, over a mine life of at least 4 years. A new resource estimate was released: the deposit contains probable reserves on the order of 615,664 t at a grade of 6.91 g/t Au.			
86	32D03	Beauchastel	Richmont Mines Inc.	Wasamac	Au	D(2:513)
87	32D03	Beauchastel	Abcourt Mines Inc.	Aldermac	Cu-Zn-Ag-Au	S
88	32D03	Beauchastel, Rouyn	Yorbeau Resources Inc.	Rouyn	Au	D(x:x)
			Diamond drilling program conducted in early 2009. Results include a 4.0-m section grading 12.6 g/t Au, and 10.35 m grading 74.67 g/t Au in hole 90-Cl-519, drilled on the Cinderella block.			
89	32D03	Dasserat	Richmont Mines Inc.	Lac Boissier	Au	GpEl
90	32D03	Rouyn	<b>Alexis Minerals Corporation / Thundermin Resources Inc.</b>	<b>Lac Pelletier</b>	<b>Au</b>	<b>D(7:959)</b>
			Positive pre-feasibility study on the project. Dewatering and rehabilitation of the ramp to extract a 40,000-tonne bulk sample. Decision to go into production to be announced in 2010. Expected production of 40,000 to 50,000 ounces of gold per year (total about 118,000 ounces). Drilling program, with results including 14.4 g/t Au over 2.4 m in drill hole 17475-72.			
91	32D06	Beauchastel	Abcourt Mines Inc.	Elder Mine	Au	Re
92	32D06	Dasserat	Rocmec Mining Inc.	Rocmec 1	Au	B(x:x), D(x:4500)
93	32D06	Dasserat	Vantex Resources Ltd	Galloway	Au	D(x:x)
			Numerous drill holes completed throughout the year, among which VHD09-19 that intersected a 228-m section grading 0.339 g/t Au, including 31.50 m at 0.75 g/t Au, including 3 m at 2.99 g/t Au.			
94	32D06	Duparquet	Normabec Mining Resources Ltd / GéoNova Exploration inc. / SOQUEM INC.	Pitt Gold	Au	D(x:x)
			A drilling program was completed in late 2008; results include, in drill hole PG2008-15, one section grading 12.15 g/t Au over 6.5 m, and another grading 3.02 g/t Au over 4.1 m.			
95	32D06	Montbray	Globex Mining Enterprises Inc.	Lac Colnet	Au-Cu-Zn	GpEm, GpMa, Pr
96	32D07	Aiguebelle, Cléryc,	Typhoon Exploration Inc.	Fayolle	Au	D(x:x)
		Destor	A drilling program was conducted in the spring on the McDonald showing. Results namely include a 2.0-m interval grading 4.79 g/t Au in drill hole FA-08-33.			
97	32D07		Agnico-Eagle Mines Ltd	Blake River	Au-Ag-Cu-Zn	D(3:3030)

TABLE 5.3 - Exploration projects in the Abitibi-Témiscamingue administrative region in 2009

Nos	NTS	TOWNSHIPS	COMPANIES / PROSPECTORS	PROJECTS	COMMODITIES	EXPLORATION WORK <sup>(1)</sup>
98	32D07	Clérycy	Xstrata Copper Canada / Alexis Minerals Corporation	Noralex	Zn-Cu-Ag-Au	Gs(r)
99	32D07	Clérycy, La Pause	Midland Exploration Inc. / Osisko Mining Corporation	Dunn	Au-Ag-Cu-Zn	GpEl, GpMa, Pr
100	32D07	Dufresnoy	Xstrata Copper Canada / Alexis Minerals Corporation	Nord Fromac	Zn-Cu-Ag-Au	Gs(r)
101	32D07	La Pause	Midland Exploration Inc.	Patris	Au	GpEl, GpMa
102	32D07	La Pause	Carrier Resources Inc.	La Pause	Au-Ag	D(2:750)
103	32D07	Manneville	Carrier Resources Inc.	MacCormack	Cu-Zn-Au-Ag	D(6:2150), GpEl, Pr, Gs(r)
						A diamond drilling program was conducted. Results include a 1.25-m interval grading 4.81% Zn, 0.41% Cu, 28.7 g/t Ag, and 0.27 g/t Au in drill hole MC-09-01.
104	32D07, 08	Bousquet	IAMGOLD/Québec Management Inc.	Doyon Mine	Au	D(10:6598)
			Results include sections grading 10 to 20 g/t Au over thicknesses from 1.0 to 2.5 m.			
105	32D07, 08	Manneville, Villemontel	Carrier Resources Inc.	Preissac	Au-Cu-Zn-Ag	Pr
106	32D08	Cadillac	Agnico-Eagle Mines Ltd	LaRonde Mine	Cu-Zn-Au-Ag-Pb	D(x:x)
107	32D08	Cadillac	<b>Agnico-Eagle Mines Ltd</b>	<b>LaRonde Extension</b>	<b>Cu-Zn-Au-Ag</b>	<b>Construction</b>
			Sinking of the internal shaft to a final depth of 2,854 m, which should be reached in the fourth quarter of 2009. Production is slated to begin in 2011. A drilling program was undertaken, targeting the deepest extensions of zone 20 North, at 3,700 m vertical depth, i.e. about 600 m below current reserves.			
108	32D09	Launay, Trécesson	Royal Nickel Corporation	Dumont	Ni-PGM	D(75:26 050), Met
109	32D09	Manneville, Villemontel	Carrier Resources Inc.	Manneville	Au	G
110	32D10	Launay, Privat	Melkior Resources Inc.	Launay	Au	G, Gp(G), Gs(sl), Pr, TE
			Grab samples collected in zone 75 yielded assay results of 13.75 g/t, 5.06 g/t, and 3.08 g/t Au. Grab samples collected 4 km north of zone 75 graded 1,415 g/t and 1,28 g/t Au, with up to 19.15 g/t Ag.			
111	32D11	Duparquet	Clifton Star Resources Inc.	Beattie Mine	Au-Ag	D(x:x)
			Drilling program completed, with results including 17.0 m at a grade of 7.00 g/t Au in drill hole B09-32.			
112	32D11	Duparquet	Clifton Star Resources Inc.	Donchester	Au-Ag	D(x:x)
			Drill holes completed, including hole D09-3, which intersected a 4.7-m interval grading 4.19 g/t Au.			
113	32D11	Destor	Diamond drilling completed, including hole DQ09-09, which intersected 8.2 m grading 9.04 g/t Au.	Duquesne	Au	D(x:x)
114	32D14	La Reine	Vantex Resources Ltd	Santa Anna	Au	D(x:x)
			Drilling program completed in 2008, the results of which were announced in 2009; drill hole SA08-27 intersected 3.00 m grading 6.76 g/t Au.			
115	32D14	Perron	Amex Exploration Inc.	Normétal	Cu-Zn-Ag-Au	D(4:500)
116	32D14, 32E03, 04	Perron	Amex Exploration Inc.	Perron	Au	D(17:x), Re, TE
			Drilling program completed, including drill hole PE200917 that intersected 1.0 m grading 11.89 g/t Au.			

1. See legend of abbreviations and meaning of bold type in Appendix I

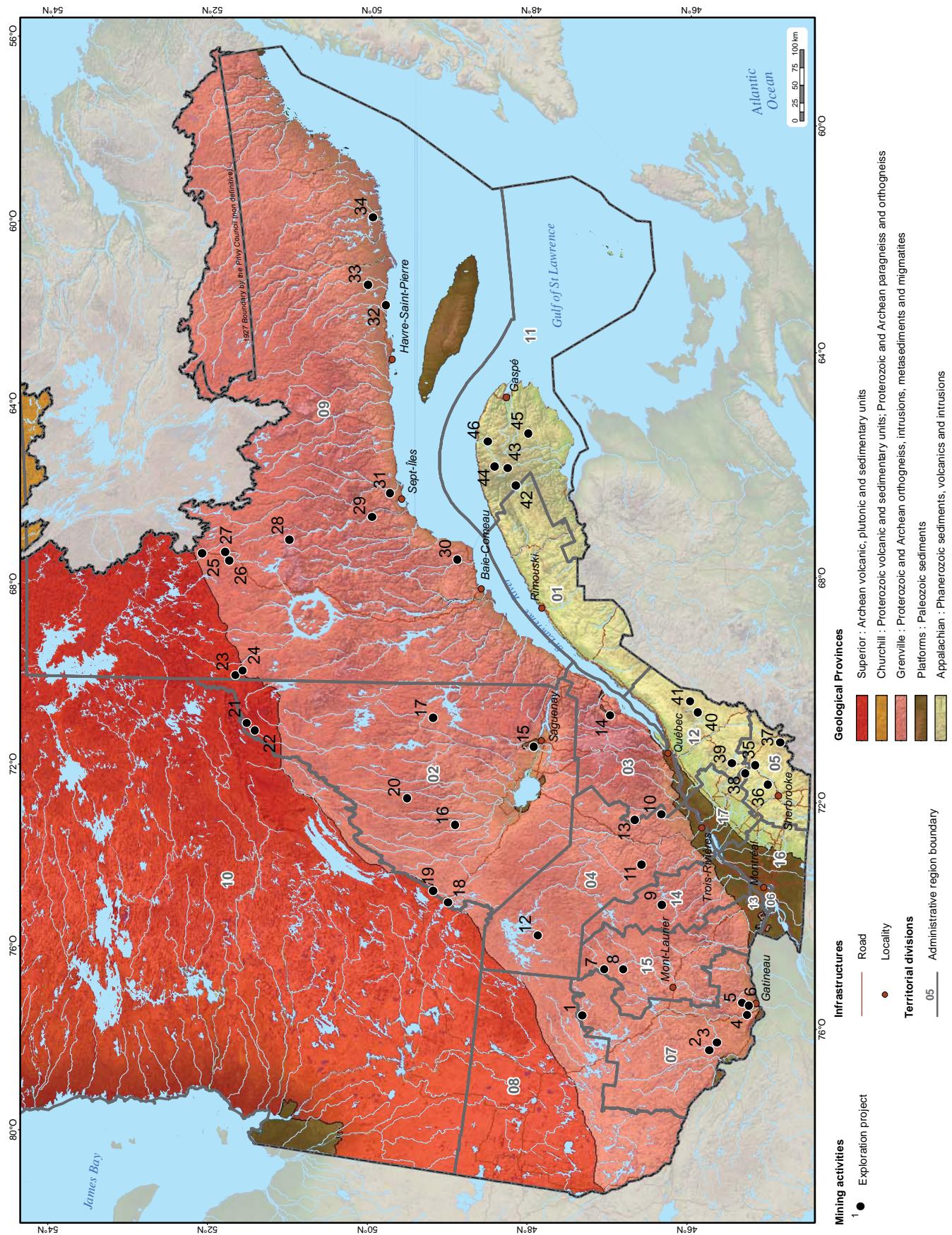


FIGURE 5.4. Exploration projects in Québec (Abitibi-Témiscamingue and Nord-du-Québec regions excluded) (see table 5.4)

**TABLE 5.4 - Exploration projects in Québec (Abitibi-Témiscamingue and Nord-du-Québec regions excluded) (see figure 5.4)**

Nos.	NTS	ADMINISTRATIVE REGION / GEOLOGICAL PROVINCE	COMPANIES / PROSPECTORS	PROJECTS	COMMODITIES	EXPLORATION WORK <sup>(1)</sup>
<b>Outaouais administrative region (07)</b>						
1	31N06, 08, 09 31O12, 13	07 and in part 08 / Grenville	Cartier Resources Inc.	Doré	Cu-Ni-Co	Gs(t), S
Northeast of Cabonga Reservoir, Cartier Resources discovered copper occurrences associated with a sulphide horizon that marks the contact between the Bouchette layered intrusion and metasedimentary rocks. The company made this discovery in 2009 during a follow-up on a regional till survey followed by a local survey. The company also uncovered elsewhere on the property, fields of massive to semi-massive sulphide boulders with copper, nickel and cobalt mineralization. The latest work reported on this property consists in a series of 119 channel samples that yielded up to 1.0% Cu over 6.0 m.						
2	31F16	07 / Grenville	Stelmine Canada Ltd	Black Lake	REE-U	Pr
3	31F16	07 / Grenville	Stelmine Canada Ltd	Murray	REE-U	Pr
4	31F16	07 / Grenville	Stelmine Canada Ltd	Meach Lake	REE-U	Pr
5	31F16	07 / Grenville	Stelmine Canada Ltd	Dam Lake	REE-U	Pr
6	31F16	07 / Grenville	Stelmine Canada Ltd	Cantley-Templeton-Quinville	REE-U	Pr
<b>Laurentides administrative region (15)</b>						
7	31O06	15 / Grenville	NioCold Mining Corporation	Pump Lake	Fe-Cu-Au-Ag-Mo-Nb-REE-U	GpGr(A)
The company continued exploration work in the Lac Lescuer area, with an airborne gravity survey designed to detect additional magnetite and sulphide zones associated with the Lescuer alkaline Suite. The latter is known for its numerous iron, copper-gold-silver, molybdenum, niobium, REE, and uranium occurrences.						
8	31O03	15 / Grenville	Resources Maxima inc.	Västel / Peter Lake	Cu-Ni	Pr, T
Prospecting and channel sampling conducted on this property located north of Sainte-Anne-du-Lac, led to the discovery of about 1% Cu and 1% Ni in metagabbros in contact with paragneisses.						
<b>Lanaudière administrative region (14)</b>						
9	31J16	14 / Grenville	Threegold Resources Inc.	Maisonneuve	REE-U	S
Northwest of Saint-Michel-des-Saints, the company collected a few samples on the site of a former mica mine, the Maisonneuve mine, in order to orient future work in the search for REE and uranium.						
<b>Mauricie administrative region (04)</b>						
10	31J16	04 / Grenville	Les Mines d'or Excel inc.	Batiscan (Montauban)	Zn-Pb-Ag-Cu-Au	Pg, D(x:x)
11	31P03	04 / Grenville	Jourdan Resources Inc.	Lac Baude	REE	Pg
12	32B02, 06, 07	04 / Grenville	Laurentian Coldfields Ltd	Grenville Project - South Block	Au	G, Cs(l), Gs(s), S
<b>Capitale-Nationale administrative region (03)</b>						
13	31P01, 02	03 / Grenville	SOQUEM INC.	Dussault	Zn-Cu-Au	G, Pg
14	21M19, 10	03 / Grenville	Rock Tech Resources Inc.	Saint-Urbain	V-Ti-Fe	G, GpEm, GpGr, Pg, S
15	22D11	02 / Grenville	Dios Exploration Inc.	Shipshaw	REE	Pg

TABLE 5.4 - Exploration projects in Québec (Abitibi-Témiscamingue and Nord-du-Québec regions excluded) (see figure 5.4)

Nos.	NTS	ADMINISTRATIVE REGION / GEOLOGICAL PROVINCE	COMPANIES / PROSPECTORS	PROJECTS	COMMODITIES	EXPLORATION WORK <sup>(1)</sup>
16	32H07, 10	02 / Grenville	MDN Inc. / IAMGOLD Québec management inc. Anita	Ta-Nb	B(70:xx), D(x:x)	
17	22E10, 15	02 / Grenville	Arianne Resources Inc.	Lac à Paul	P-Ti	D(39:65550), GpMa(A), Pr
18	32C08, 09	02 / Supérieur	Arianne Resources Inc.	Lac à Paul	P-Ti	D(39:65550), GpMa(A), Pr
19	32G09	02 / Supérieur	Cartier Resources Inc.	Dollier	Au	GpEm(A), GpMa(A), Pr, S, T
				Discovery of a new gold showing in a semi-massive sulphide horizon (pyrite-pyrrhotite) in mafic lavas. Channel samples yielded grades of 3.85 g/t Au over 3.2 m.		
20	22I05, 32I01, 02	02 / Grenville	Laurentian Goldfields Ltd	Grenville Project - North Block	Au	G, Cs(l), Cs(sl), S
21	23D02	02 / Superior	Anglo-Canadian Uranium Corp.	Big Mac	U	Pg
22	23D03	02 / Superior	Anglo-Canadian Uranium Corp.	Charles	U	Pg
<b>Côte-Nord administrative region (09)</b>						
23	23C05	09 / Superior	Midland Exploration Inc.	Lac des Neiges	Ni-Cu-Pt-Pd	Pr
24	23C03, 04, 06	09 / Grenville	Manicouagan Minerals Inc.	Mouchalagane	Cu-Ni-Pt-Pd-PGE	D(x:x)
25	<b>23B14</b>	<b>09 / Grenville</b>	<b>Consolidated Thompson Iron Mines Ltd</b>	<b>Bloom Lake</b>	<b>Fe</b>	<b>Re, construction</b>
				The company released a new resource estimate in March 2009. Measured and indicated resources are estimated at 82.7 Mt grading 29.3% total Fe, with inferred resources of 47.2 Mt grading 29.32% total Fe. Drilling program - BW-08-19: 301.14 m at 30.41% total Fe. Construction of infrastructure continued during the year, with production slated to begin in the fourth quarter of 2009. In October, the company announced the start-up of construction work at its ore handling facilities in the Port of Sept-Îles.		
26	23B05	09 / Grenville	Consolidated Thompson Iron Mines Ltd	Lamèlée-Peppler	Fe	Re
				The company released a new resource estimate. The Lamèlée deposit contains an indicated resource of 641.72 Mt grading 30.30% total Fe, and the Peppler deposit contains an indicated resource of 293 Mt grading 28.46% total Fe.		
27	23B11, 12, 14 23B 05, 06 22O13	09 / Grenville	Champion Minerals Inc.	Fermont (15 properties)	Fe	D(18:x), G, GpMa(A)
				Diamond drilling was completed on the Fire Lake North claim block. Drill hole DL09-01 intersected 29.2 m grading 24.0% Fe. The company launched a program to prepare a 43-101-compliant resource estimate for the deposit.		
28	22O11, 12	09 / Grenville	Manicouagan Minerals Inc. / Pure Nickel Inc.	HPMForges	Cu-Ni-Co	D(17:3388), G, Pr
29	22J10	09 / Grenville	Big Red Diamond Corporation	J6L1 Rare Earth Element	REE	GpEm(A), GpMa(A), GpRa(A)
30	22G12, 13	09 / Grenville	Fancamp Exploration Ltd / Sheridan Platinum Group Ltd	Godbout North	U	G

**TABLE 5.4** - Exploration projects in Québec (Abitibi-Témiscamingue and Nord-du-Québec regions excluded) (see figure 5.4)

**TABLE 5.4** - Exploration projects in Québec (Abitibi-Témiscamingue and Nord-du-Québec regions excluded) (see figure 5.4)

Nos.	NTS	ADMINISTRATIVE REGION / GEOLOGICAL PROVINCE	COMPANIES / PROSPECTORS	PROJECTS	COMMODITIES	EXPLORATION WORK <sup>(1)</sup>
40	21L08	12 / Appalachians	Golden Hope Mines Ltd	Bellechasse (Secteur FSG)	Au-Zn-Cu-Pb	Gs(sl), Pg
41	21L02, 07, 08, 09	12 / Appalachians	Golden Hope Mines Ltd	Bellechasse (Timmmins)	Au	D(x:x), S
Golden Hope Mines Ltd continued exploration work on its Bellechasse property. This property, which consists of nearly 700 mining claims, is 10 km wide by 95 km long, between Saint-Victor and Sainte-Lucie-de-Beauregard. It hosts the Timmins gold deposit composed of quartz-carbonate-sulphide-gold veins in a gabbro unit. The 2008 drilling program intersected gold-bearing intervals at the Timmins deposit, with the following gold grades: 4.35 g/t over 6 m; 3.48 g/t over 8 m; 3.42 g/t over 4 m; 2.31 g/t over 2 m.						
<b>Bas-Saint-Laurent administrative region (01)</b>						
Cf.	22B09, 16	11 and in part 01 / Appalachians	Threegold Resources Inc.	Lemieux Dome	Cu-Zn-Pb-Ag	Pg
42	22B09, 16	11 and in part 01 / Appalachians	Threegold Resources Inc.	Lemieux Dome	Cu-Zn-Pb-Ag	Pg
<b>Gaspésie-Îles-de-la-Madeleine administrative region (11)</b>						
43	22A13	11 / Appalachians	Kimpar Resources Inc.	Vortex	Cu-Mo	Gp
44	22A13, 22H04	11 / Appalachians	First Source Ressources Inc.	Lac Des Pics	Cu-Au-Ag	D(5:1191)
45	22A11	11 / Appalachians	Breakwater Resources Ltd / Regal Consolidated Ventures Ltd	Mont Observation	Au-Cu-Pb-Zn-Ag	Gs(sl), Pg
46	22H03	11 / Appalachians	Exploration Orbite VSPA inc.	Grande-Vallée	Al	Gp
Exploration work was conducted on the red clay deposit in the L'Original Formation to better delineate ore reserves in the deposit. The company reported the presence of one hundred million metric tonnes of aluminous clay. However, the economic feasibility of the industrial process to extract high-purity alumina has not yet been certified, and consequently, the notion of reserves or resources cannot be applied to the tonnage of aluminous clay.						

1. See legend of abbreviations and meaning, of bold type in Appendix I

# MINERAL PRODUCTION

Louis Marcoux, Katrie Bergeron, Denis Blackburn, and Germain Girard

## Deposit Appraisal Projects

In 2009, 16 mining projects reached or remained in the deposit appraisal stage, three of which reached the development phase (figure 6.1; tables 6.1). These include 8 gold projects all located in the Abitibi region, 4 iron ore projects located in the Côte-Nord region, one uranium project, one for niobium, one for diamond and one for chrysotile.

The Canadian Malartic project, located in part within the urban sector of the town of Malartic, was the object of public hearings held by the BAPE in March and April of 2009. The mining project obtained a government decree in August 2009, authorizing the development of an open pit mine. Osisko Mining Corporation has invested \$600M to date in mine development work. The start-up of mining operations at this deposit, which hosts 6.3 M ounces of gold, is scheduled for April 2011.

The Bloom Lake, LaRonde Extension, and Malartic-Midway projects are expected to achieve commercial production during 2010.

Strateco Resources continued development work on its Matoush uranium project. In 2009, the company completed an environmental study that required a \$4.5M investment and 29 months of work. A drilling program, planned over two years, is designed to delineate a potential 60 M pounds U<sub>3</sub>O<sub>8</sub>.

Québec's first diamond mine is expected to become reality around 2013. Stornoway Diamond Corporation and SOQUEM still have much work ahead of them to reach this milestone. Upcoming steps include selection of mining methods, receipt of environmental authorizations, and extension of Highway 167 toward the Monts Otish.

## Mines in Operation

The mining industry in Québec was not as strongly affected by the drop in base metal prices (Cu, Ni, Zn), since most of the mines in operation in Québec in 2009 were held by major mining companies or gold producers. The price of gold ranged from US\$868 to more than US\$1,200 per ounce in 2009. Consequently, gold producers were not affected by the economic crisis that prevailed in 2009. Mine closures observed in 2009 are due to depletion of reserves or to financial difficulties experienced by mining companies.

Table 6.2 lists production statistics for metallic substances in Québec, whereas figure 6.1 shows the location of mines in operation in 2009.

## NEW MINES

**Agnico-Eagle Mines** inaugurated in August of 2009 the **Lapa** mine located in Rivière-Héva. This mining complex required investments on the order of 180 million dollars and will employ 130 workers until 2015. The mine is expected to produce 1.1 M ounces of gold. **North American Palladium (NAP)**, who acquired the assets of Cadiscor Resources in May of 2009, resumed operations at the **Sleeping Giant** mine in 2009. NAP intends to produce 50,000 ounces of gold per year.

## MINE CLOSURES

In January 2009, **Campbell Resources (Campbell)** and its subsidiaries (**Meston Resources and MSV Resources**) sought the protection of the *Companies' Creditors Arrangement Act (C-36)* to prepare and present a plan of arrangement to its creditors. **Campbell** permanently shut down the **Copper Rand** mine and the **Merrill** open pit mine on December 31, 2008, due to lack of financing. **Meston Resources** has now filed for bankruptcy, and **Campbell** and **MSV Resources** remain under the protection of C-36. **Campbell** holds more than 10,000 hectares of mining rights in the Chibougamau area. These mining concessions, leases and claims have not seen any mineral exploration for more than 20 years. Also in January, **First Metals** announced the closure of its **Fabie** mine. Weak copper prices were stated as the main reason behind this shutdown. In the Chibougamau area, Nord-du-Québec region, the **Troilus** mine held by **Inmet Mining Corporation** ceased mining operations in the open pits due to depletion of reserves. Processing of low-grade ore stockpiles will continue until June of 2010.

**IAMGOLD Corporation** permanently closed the **Doyon** mine in Preissac in late December 2009. The Doyon mine was in operation since the start of the 1980s. Over its 30-year mine life, Doyon produced more than 30 M tonnes of ore and 5.8 M ounces of gold, including output from the Mouska mine.

## PROJECTS ON STAND-BY

Certain mining and investment projects were put on stand-by by considering the economic conditions that prevailed in 2009. For example, **ArcelorMittal**, largest steel manufacturer in the world and parent company of **ArcelorMittal Mines Canada**, halted all of its expansion projects, namely plans for year-round operations at the **Fire Lake** mine, expansion of the pellet plant in Port-Cartier, and development of the Mont Reed iron ore deposit. However, the anticipated recovery of steel markets in 2010 may prompt the company to reconsider some of these projects.

**Canadian Royalties**, who interrupted development work at the **Nunavik Nickel** mining project in 2008, was acquired by Chinese miner **Jien Canada Mining**. Following this acquisition, development work is expected to resume at the Nunavik Nickel project in Nunavik. **Xstrata Nickel** postponed its expansion project at the **Raglan** mine site. It was planning to increase the processing capacity from 1.3 Mt/year to 2.0 Mt/year by 2013.

As for **Breakwater Resources**, mining operations at the **Langlois** mine, shut down in October of 2008, did not resume as planned in 2009. The mining company announced a \$4.6M investment for the development of two access ramps. Mining operations may resume in 2011.

## Industrial Minerals, Industrial Stone, and Architectural Stone

*N'golo Togola and Pierre Buteau*

### **INDUSTRIAL MINERALS, INDUSTRIAL STONE, AND PEAT**

Figure 6.2 shows the location of active quarries and mines for industrial minerals and stone, as well as producing peatlands in Québec. Table 6.3 provides a brief description of each operation.

Industrial minerals and stone produced in Québec in 2009 include: chrysotile asbestos, ilmenite and titanium slag, graphite, mica, rock salt and brine, K-feldspar, clay minerals, peat, silica, as well as limestone, dolomite and marble.

Chrysotile asbestos is extracted in two mines in the Estrie region (12). Ilmenite and titanium slag are produced at the Lac Tio mine, north of Havre-Saint-Pierre. Flaky graphite is mined at the Lac-des-Îles mine south of Mont-Laurier, and mica at the lac Letondal mine in Suzor Township, northwest of La Tuque in the Mauricie region. K-feldspar was mined for a short per-

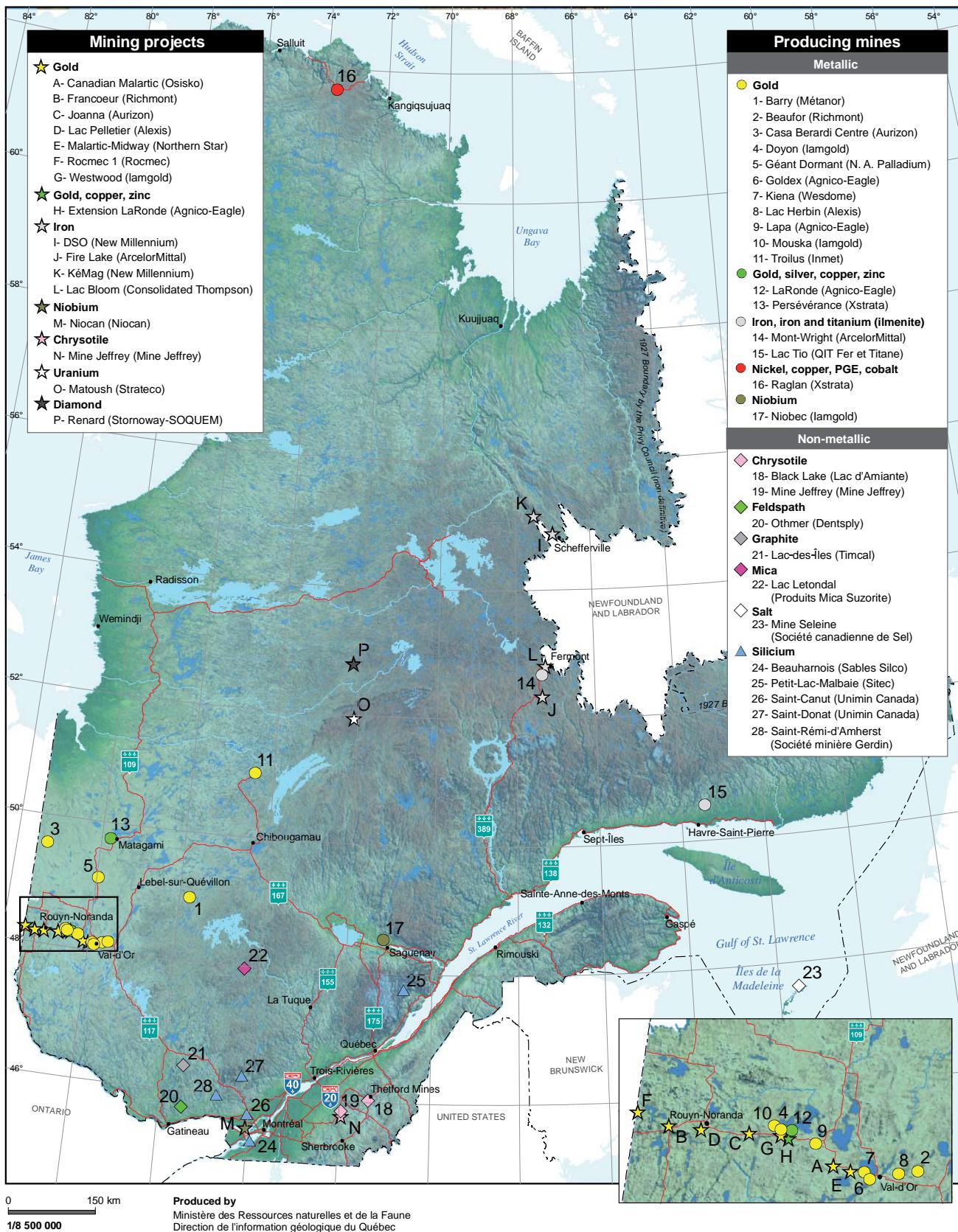
iod of time (3 to 4 months) in the Outaouais region, north of Buckingham. Rock salt is extracted at the Seleine mine in the Îles-de-la-Madeleine, whereas brine is produced from five wells in the Bécancour area. Shales are quarried in the Montréal area and are used to manufacture bricks.

The main sources of silica are: quartzite (five quarries), sandstone (four quarries), and natural sand (two operations). Limestone, dolomite, and marble are mined for industrial purposes in more than 15 quarries. Depending on their chemical or physical characteristics, they are used to produce quick lime (three operations), various aggregate products (liming material, mineral fillers, granules), or cement (three producers).

Peat production in 2009 may be described as extremely disappointing. Already in 2007 and 2008, peat production levels over the summer season were much lower than what producers were aiming for. Consequently, inventories at the start of the summer of 2009 were so low they could be described as being practically non-existent. The weather conditions that prevailed from early May to mid-August brought precipitations on a nearly daily basis over much of the producing regions in Eastern Canada, with little to no significant sunny periods. Field operations were strongly affected. Thus, by early September, production levels had barely reached 40% throughout Québec.

### **ARCHITECTURAL STONE**

Figure 6.3 shows the location of architectural stone quarries in operation in Québec in 2009. Table 6.4 provides a brief description of each operation. A total of 98 quarries of architectural stone are currently active in Québec. The Rivière-à-Pierre area, with its 16 quarries in operation, constitutes the most important producing region in Québec for dimension stone. The Saint-Nazaire and Chute-des-Passes areas with four quarries each, as well as the Saint-Alexis-des-Monts and Saint-Didace area with five quarries in operation, are also among the most active areas for architectural stone production.



**FIGURE 6.1.** Producing mines and major mining projects in advanced phase, january 2010.

**TABLE 6.1 - Projects in the development phase and projects in the deposit appraisal phase in Québec (see figure 6.1)**

Site	Project	Company	Summary description of ore deposit	Proven and probable reserves	Measured resources	Indicated resources	Inferred resources	Expected start-up of production	Commodities	Expected daily production rate	Expected mine life	Township / NTS / Administrative region
<b>Projects in the development phase in Québec (see figure 6.1).</b>												
A	Canadian Malartic	Osisko Mining Corporation Inc.	Gold porphyry	183 M mt at 1.1 g/t Au	33.5 M mt at 0.9 g/t Au	283 M mt at 1.1 g/t Au	20 M mt at 0.73 g/t Au	2011	Gold Silver	55,000 mt/d	9 years	Fournière / 32D01 / Abitibi-Témiscamingue
H	LaRonde Extension	Agnico-Eagle Mines Ltd	Gold-rich volcanicogenic massive sulphides	17.5 M mt at na	na	1.8 M mt at 5.8 g/t Au, 20.1 g/t Ag, 0.3% Cu, 0.8% Zn, and 0.03% Pb	9.8 M mt at 2.7 g/t Au, 22.0 g/t Ag, 0.3% Cu, 1.0% Zn, and 0.08% Pb	2010	Gold Zinc Copper Silver	6,900 mt/d	11 years	Bousquet / 32D08 / Abitibi-Témiscamingue
L	Bloom Lake	Consolidated Thompson Iron Mines Ltd	Lake Superior-type iron formation	580 M mt at 30.0% Fe	488 M mt at 29.9% Fe	149 M mt at 29.3% Fe	35 M mt at 31.0% Fe	2010	Iron	55,000 mt/d	35 years	Normanville / 23B14 / Côte-Nord
<b>Projects in the deposit appraisal phase in Québec (see figure 6.1).</b>												
I	DSO	New Millennium Capital Corp.	Enriched iron formations	52 M mt at 58.9% Fe	22 M mt at 59.8% Fe	33 M mt at 58.4% Fe	6 M mt at 56.8% Fe	2011	Iron	25,000 mt/d 7 months/year	10 years	23I15 / Côte-Nord
J	Fire Lake	ArcelorMittal Mines Canada	Algoma-type iron formations	na	na	na	na	2010-2011 (Seasonal production since 2006)	Iron	14,000 mt/d	na	Bergeron / 23B06 / Côte-Nord
B	Francoeur	Richmont Mines Inc.	Shear-related alteration and replacement	616 K mt at 6.9 g/t Au	na	706 K mt at 7.8 g/t Au	202 K mt at 6.0 g/t Au	2011	Gold	600 mt/d	4	Beauchastel / 32D03 / Abitibi-Témiscamingue
C	Joanna	Aurizon Mines Ltd	Shear-related disseminated sulphides and quartz veinlets	23.6 M mt at 1.3 g/t Au	19.5 M mt at 1.4 g/t Au	14.9 M mt at 1.5 g/t Au	30.9 M mt at 1.4 g/t Au	na	Gold	8,500 mt/d	8	Joannes / 32D02 / Abitibi-Témiscamingue
K	KéMag	New Millennium Capital Corp.	Lake Superior-type iron formations	2.1 G mt at 31.3% Fe	1.5 G mt at 31.2% Fe	0.9 G mt at 31.4% Fe	1 G mt at 31.2% Fe	na	Iron	215,000 mt/d	> 25 years	23O03 / Nord-du-Québec
D	Lac Pelleter	Alexis Minerals Corporation Inc.	Lode gold: greenstone-hosted quartz-carbonate veins	483 K mt at 7.6 g/t Au	18 K mt at 8.5 g/t Au	583 K mt at 8.6 g/t Au	214 M mt at 8.8 g/t Au	na	Gold	625 mt/d	3 to 7 years	Rouyn / 32D03 / Abitibi-Témiscamingue
E	Malartic-Midway	Northern Star Mining Corp.	Greenstone-hosted quartz stockwork and gold porphyry	na	na	2.4 M mt at 3.6 g/t Au	2 M mt at 3.6 g/t Au	na	Gold	na	na	Fournière / 32D01 / Abitibi-Témiscamingue

**TABLE 6.1 - Projects in the development phase and projects in the deposit appraisal phase in Québec (see figure 6.1)**

Site	Project	Company	Summary description of ore deposit	Proven and probable reserves	Measured resources	Indicated resources	Inferred resources	Expected start-up of production	Commodities	Expected daily production rate	Expected mine life	Township / NTS / Administrative region
			Mining method									
O	Matoush	Strateco Resources inc.	Shear-related uranium deposit	na	na	4.36 K mt at 0.78% U <sub>3</sub> O <sub>8</sub>	1.2 M mt at 0.50% U <sub>3</sub> O <sub>8</sub>	2013	Uranium	500 to 700 mt/d	7 years	32P16 / Nord-du-Québec
N	Jeffrey Mine	Mine Jeffrey Inc.	Chrysotile asbestos deposit in ultramafic rocks	na	na	na	na	2011	Chrysoite	20,000 mt/d	21 years	Shipton / 21E13 / Estrie
M	Niocan	Niocan Inc.	Carbonatite-hosted ore deposit	na	8.6 M mt at 0.64% Nb <sub>2</sub> O <sub>5</sub> (historic data)	5.3 M mt at 0.64% Nb <sub>2</sub> O <sub>5</sub> (historic data)	na	Pending CA from the MDDEP	Niobium	2,500 mt/d	17 years	Lac des Deux-Montagnes / 31G09 / Laurentides
P	Renard	Stormway Diamond Corporation / SOQUEM	Kimberlite-hosted diamond deposit	na	na	26 M mt at 0.87 c/t	18 M mt at 0.75 c/t	2013	Diamond	3,700 mt/d	7 years	33A16 / Nord-du-Québec
F	Roemec 1	Rocmec Mining Corporation inc.	Lode gold; greenstone-hosted quartz-carbonate veins	na	92 K mt at 6.7 g/t Au	274 K mt at 6.4 g/t Au	955 K mt at 10.4 g/t Au	na	Gold	na	na	Dasserat / 32D04 / Abitibi-Témiscamingue
G	Westwood	IAMGOLD-Québec Management inc.	Gold-rich volcanic massive sulphides, stockwork and disseminated sulphides	na	na	313 K mt at 6.9 g/t Au	11 M mt at 8.7 g/t Au	2013	Gold	700,000 mt/d to 800,000 mt/d	16 years	Bousquet / 32D07 / Abitibi-Témiscamingue

**List of abbreviations:**

Ag: silver  
 Au: gold  
 c/t: carat/tonne  
 Cu: copper  
 Fe: iron  
 G: billion  
 g/t: gram/tonne  
 K: thousand  
 na : not available  
 Nb<sub>2</sub>O<sub>5</sub>: niobium oxide  
 Pb: lead  
 Zn : zinc

**NOTES:** The data compiled in this table remain preliminary and are based on information publicly released by the companies.

TABLEAU 6.2 - Production of metallic commodities in Québec ( see figure 6.1)

Site	Mine	Company	Summary description of the deposit	One process in 2009	Metal production in 2009	Proven and probable mineral reserves at January 1st 2010	Employees in 2009	Cumulative production	Number of years of production	Township / NTS / Region administrative area / Office
<b>Base metals : Cu and Zn (Ag and Au)</b>										
<b>Mining method</b>										
13	Perseverance (Matagami Mine)	Xstrata Zinc	VMS-type in mafic and felsic lavas	N.a.	N.a.	N.a.	N.a.	N.a.	2008-20.. (2)	Daniel / 32F12, 13 / 10 / Val-d'Or
16	Raglan (Fonderie - Sudbury/ Raffinerie - Norvège)	Québec Mining Raglan Society Ltd - Xstrata Nickel	Magnetic massive sulfides lenses.	1 309 499 t at 0.68 % Cu 2.96 % Ni 0.05 % Co	29 246 t Ni 7234 t Cu 588 t Co	*** 11 539 700 t at 0.77 % Cu 2.94 % Ni 0.06 % Co	733	N.a.	1998-20.. (12)	35G09, H11, H12 / 10 / Chibougamau
<b>Precious metals : Au et Ag</b>										
9	Lapa (Laronde Mine)	Agnico-Eagle Mines Ltd	Blue-grey quartz vein in a biotite and sericitic-bearing volcanic rock.	N.a.	1660 Kg Au	N.a.	300	N.a.	2009 à 2... (1)	Dubuisson/ 32C04/ 08 / Val-d'Or
7	Kiena	Wesdome Gold Mines Ltd	Auriferous breccia and quartz veins localized between two komatiitic flows	302 000 t at 3.60 g/t Au	1101 Kg Au	*** 600 000 t at 4.03 g/t Au	164	11 455 478 t at 4.74 g/t Au	1981-2002 (25)	Dubuisson/ 32C04/ 08 / Val-d'Or
8	Lac Herbin (Camilo Plant)	Alexis Mineral Corporation	Gold-bearing mineralization in a stockwork of quartz, pyrite veins inside shear zones crosscutting the Bourlanaque Batholith	170 657 t at 6.01 g/t Au	1026 Kg Au	*** 61 7374 t at 7.36 g/t Au	100	254 486 t at 6.26 g/t Au	2008-20.. (2)	Bourlanaque / 32C04/ 08 / Val-d'Or
2	Beaufor (Camilo Plant)	Richmont Mines Inc.	Gold-bearing veins located inside f-E-W shear zones at the margin of the Bourlanaque Batholith	93 465 t at 6.35 g/t Au	606 Kg Au 48 Kg Ag	*** 165 761 t at 8.38 g/t Au	95	2 132 671 t at 7.32 g/t Au	1933-1951 (32)	Pascalis / 32D08 / 08 / Rouyn-Noranda
12	LaRonde	Agnico-Eagle Mines Ltd	Massive and semi-massive pyrite lenses in sericitized felsic volcanics and metamorphosed into andalusite and kyanite-bearing schists	2 545 830 t at 2.75 g/t Au 62.78 g/t Ag 0.34 % Cu 0.96 % Zn 0.31 % Pb	63 30 9 Kg Au 73.54 t Cu 66 123.9 t Zn 21.7 t Pb	*** 33 264 186 t at 4.44 g/t Au 33.24 g/t Ag 0.29 % Cu 1.53 % Zn 0.14 % Pb	690	30 090 040 t at 4.32 g/t Au 58.79 g/t Ag 0.39 % Cu	1988-20.. (22)	Bousquet / 32D08 / 08 / Rouyn-Noranda
4	Doyon	Langold Gestion Québec inc.	Veinlets and disseminated pyrite in sericitic schists, in intermediate felsic volcanics and in Moosha pluton	255 980 t at 7.30 g/t Au	1867.6 Kg Au 766 Kg Ag	0	180	30 567 889 t at 5.66 g/t Au	1980-20.. (30)	Bousquet / 32D07 / 08 / Rouyn-Noranda
10	Mouska (Mine Doyon)	Langold Gestion Québec inc.	Quartz veins in the Moosha diorite close to the northern shear contact	132 297 t at 12.6 g/t Au 0.19 % Cu	1587.5 Kg Au 282.5 t Cu	** 119 000 t at 13.7 g/t Au 0.18 % Cu	130	N.a.	1991-20.. (19)	Bousquet / 32D07 / 08 / Rouyn-Noranda

**TABLEU 6.2 - Production of metallic commodities in Québec ( see figure 6.1)**

Site	Mine	Company	Summary description of the deposit	Ore process in 2009	Metal production in 2009	Proven and probable mineral reserves at January 1st 2010	Employees in 2009	Cumulative production	Number of years of production	Township / NTS / Region administrative area / Office
6	Goldex	Agnico Eagle Mines Ltd	Quartz-tourmaline veins with Py-Cp cross cutting granodiorite dykes and sills	2 520 000 t at 2.2 g/t Au	4629.2 Kg/gAu	N.a.	230	N.a.	2008-20..(2)	Dubuisson/ 32C04 / 08 / Val d'Or
			<b>Mining method</b>							
			Underground mine							
5	Sleeping Giant	North American Palladium Ltd	Gold-bearing quartz and sulfides veins at contact between dacitic intrusions and lava flows	32 822 t at 5.65 g/t Au	147 Kg/Au 214 Kg/Ag	**205 838 t at 8.64 g/t Au	84	3 158 698 t/m à 10.48 g/t Au	1987-91 1992-2008 2009-... (20)	Chaste/ 32F04 / 10 / Val d'Or
			Underground mine							
3	Casa Berardi	Aurizon Mines Ltd	Quartz-carbonate-pyrite-arsenopyrite veins in shear zones or stockworks	688 677 t at 7.77 g/t Au	4937 Kg/ Au 1050 Kg Ag	**3 836 220 t at 7.75 g/t Au (2008)	405	N.a.	1988-1997 2006-20.. (14)	Casa-Berardi / 33E11 / 10 / Rouyn-Noranda
			Underground mine							
1	Barry (lac Bachelor plant -Desmaraîsville	Metanor Resources Inc.	Quartz-carbonate-albite-pyrite veins in shear zones	250 000 t at 2.65 g/t Au 0.28 g/t Ag	500 Kg Au 6.1 Kg Ag	N.a.	85	N.a.	2008-20.. (2)	Barry / 32b13 / 04 / Val-d'Or
			Open pit mine							
11	Troilus	Inmet Mining Corporation	Au-Cu porphyry in diorite	1 691 823 t at 1.376 g/t Au 0.117 % Cu	4203.3 Kg Au 5182.5 Kg Ag 6532 t Cu	*** 3 278 576 t at 0.577 g/t Au 0.09 % Cu	180	67 946 868 t at 1.06 g/t Au 0.1 % Cu	1997-201. (14)	1524 / 32O01 / 10 / Chibougamau

**TABLE 6.2 - Iron, ilmenite, niobium and graphite production in Québec (see figure 6.1)**

Site	Mine	Company	Summary description of the deposit	Total production in 2009		Shipment of first transformation products in 2009		Reserves (at January 1st 2010)	Employees in 2009	Cumulative production	Years of production (#)	Township/NTS / Administrative area / Office
				Mining method	N.a.	N.a.	N.a.					
14	Mont Wright	Québec Cartier Mining Company	Specular hematite in metamorphosed iron formation of the Gagnon Group (5 open pits (Paul's Peak, Versant Nord, A, B and C))	N.a.	N.a.	N.a.	N.a.	N.a.	2000 (Mt-Wright + Port-Cartier)	1976-20.. (33)	Normanville / 23B14, B11, B09 / 09 / Sept-Îles	
15	Lac Tio	Iron and Titanium QIT Inc.	Massive Hem-ilmenite in anorthosite associated with Haute-Saint-Pierre intrusive suite	N.a.	N.a.	N.a.	N.a.	N.a.	N.a.	1950-20.. (59)	Parker / 12109, L/11/09 / Sept-Îles	
17	Niobec	Iamgold Gestion Québec Inc	Pyrochlore in the St-Honoré carbonatite. Underground mine	1 755 000 t at 0,610 % Nb <sub>2</sub> O <sub>5</sub>	6 230 346 kg Nb <sub>2</sub> O <sub>5</sub>	N.a.	*** 10 176 362 t at 0,62 % Nb <sub>2</sub> O <sub>5</sub> (proven) 6 213 437 t at 0,62 % Nb <sub>2</sub> O <sub>5</sub> (probable) (2007)	N.a.	290	N.a.	1976-20.. (34)	Simard / 22011/02 / Québec
21	Lac-des-Îles	Timcal Canada Inc.	Disseminated graphite flakes in crystalline limestone with quartzite horizons	N.ad.	N.ad.	N.a.	N.a.	N.a.	N.a.	1989-20.. (20)	Bouthillier / 310105, 15 / Montréal - Estrie - Laurentides	

#### Abbreviation List

Au : Gold  
 Ag : Silver  
 Cu : Copper  
 BO : Biotite  
 CP : Chalcopyrite  
 PO : Pyrrhotite  
 PY : Pyrite  
 SP : Sphalerite  
 Zn : Zinc

t : Metric ton

VMS : Volcanogenic massive sulfides  
 Ni : Nickel  
 N.a. : Non available

#### NOTES

The data compiled in this table are preliminary and have been collected from mining companies before they published their official financial statement.

The difference between proven mineral reserves and probable mineral reserves is defined according to National Instrument 43-101.

The site for the ore processing plant in 2009 is indicated in parenthesis if different from the exploitation site.

The reserves compiled in this table take into consideration:

\* Ore losses

\*\* Ore dilution

\*\*\* Ore losses and ore dilution

\*\*\*\* None of those factors

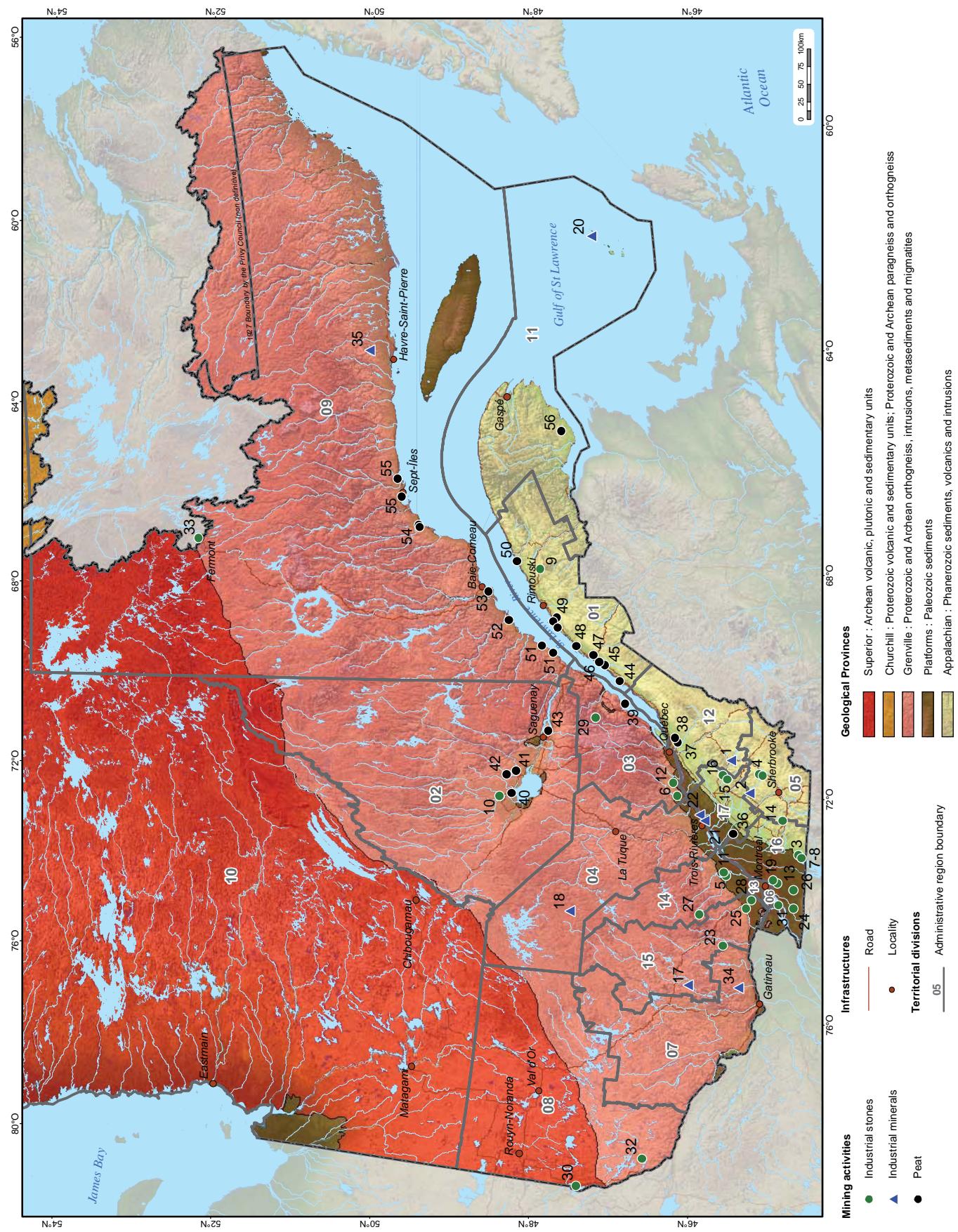


FIGURE 6.2. Peatlands, and industrial mineral and stone quarries in production in Québec in 2009 (see table 6.3).

TABLE 6.3 - Peatlands, and industrial mineral and stone quarries in production in Québec in 2009 (see figure 6.2)

SITE	DEPOSIT	COMPANY	SUMMARY DESCRIPTION OF DEPOSIT	PRODUCTS	TOWNSHIP / NTS	ADMINISTRATIVE REGION
<b>Asbestos (chrysotile)</b>						
1	Black Lake	Lac d'Amianie du Québec inc.	Vein stockwork in serpentized ultramafic rocks	Chrysotile asbestos fibres	Ireland / 21L03	12
2	Jeffrey	Mine Jeffrey inc.	Vein stockwork in serpentized ultramafic rocks	Chrysotile asbestos fibres	Shipton / 21E13	12
<b>Limestone, dolomite and marble</b>						
3	Bedford	Graymont (Qc) Inc. (Bedford division)	Corey Formation limestone	Quicklime, ground limestone products for industrial use, crushed stone	Stanbridge / 31H03	16
4	Domlim #5 and #6	Graymont (Qc) Inc. (Marbleton division)	Lac Aylmer Formation limestone	Quicklime, ground limestone products for industrial use, crushed stone	Dudswell / 21E12	12
5	Jolichaux	Graymont (Qc) Inc. (Joliette division)	Deschambault Formation limestone	Quicklime, ground limestone products for industrial use, crushed stone	Lavaltrie / 31I03	14
6	Calco	Graymont (Portneuf) Inc.	Deschambault Formation limestone	Crushed stone, ground limestone products for industrial use	Seigniory of Grondines / 31I09	3
7	Saint-Armand Messier-Missisquoi	Omya Canada Inc. (division St-Armand)	Strites Pond Formation limestone	Pulverized limestone for use as mineral filler	Seigniory of Saint-Armand / 31H03	16
8	Saint-Armand Principale	Omya Canada Inc. (division St-Armand)	Strites Pond Formation limestone	Pulverized limestone for use as mineral filler, white terrazzo granules	Seigniory of Saint-Armand / 31H03	16
9	La Rédemption	Coopérative des producteurs de chaux du Bas-Saint-Laurent	Dolomitic marble from the Sayabec Formation	Magnesian soil improvement	Awanijish / 22B05	1
10	Pères Trappistes	Les Calcîtes du Nord inc.	Calctic marble	White granules for artificial stone, masonry sand, soil improvement	Pelleter / 32A16	2
11	Ciment indépendant	Ciment St-Laurent (indépendant) inc.	Limestone from the Trenton and Black River Groups	Cement production	Lanoraye / 31I03	14
12	Saint-Basile-Sud	Ciment Québec inc.	Limestone from the Trenton and Black River Groups	Cement production	Auteuil / 21L12	03
13	Ciment Lafarge	Lafarge Canada inc.	Limestone from the Trenton and Black River Groups	Cement production	Sault-Saint-Louis / 31H05	16
14	Soca	Agégats Waterloo inc.	Dolomitic marble from the Stukely-South fault zone	Magnesium-rich soil improvement, terrazzo granules, decorative aggregate	Stukely / 31H08	5
15	Saint-Ferdinand	Les Carrières St-Ferdinand inc.	Oak Hill Group dolomite	Magnesium-rich soil improvement, decorative aggregate	Halifax / 21L04	17
16	Trottier Mills	Les Carrières St-Ferdinand inc.	Oak Hill Group dolomite	Magnesium-rich soil improvement	Chester / 21L04	17

TABLE 6.3 - Peatlands, and industrial mineral and stone quarries in production in Québec in 2009 (see figure 6.2)

SITE	DEPOSIT	COMPANY	SUMMARY DESCRIPTION OF DEPOSIT	PRODUCTS	TOWNSHIP / NTS	ADMINISTRATIVE REGION
Graphite						
17	Lac-des-Îles	Timcal Canada Inc.	Disseminated flaky graphite in crystalline limestone ( $\pm$ quartzite)	Graphite concentrate for refractory materials, foundry moulds, lubricants, brake linings	Bouthillier / 31J05	15
Phlogopite						
18	Lac Letondal mine	Les Produits Mica Suzorite inc.	Lens-shaped alkaline intrusion with 80-85% phlogopite (suzorite variety)	Ground mica for use as mineral filler (joint cement, plastics) and drilling mud	Suzor / 31O16	4
Clay minerals						
19	Briqueterie Saint-Laurent	Hanson Brick Ltd	Nicolet Formation shale	Facing bricks	La Prairie / 31H06	16
Salt						
20	Seleine	Canadian Salt Company Ltd (Mine Seleine division)	Carboniferous salt dome	De-icing salt	Îles-de-la-Madeleine / 11N12	11
21	Bécancour #2 well	Junex Inc. (Junex Solnat division)	Brine	De-icing and dust-control products	Bécancour / 31I08	17
22	Saint-Angèle-de-Laval well	Junex Inc. (Junex Solnat division)	Brine	De-icing and dust-control products	Bruyère/ 31I08	17
Silica						
23	Saint-Rémi d'Amherst	Société minière Gerdin inc.	Quartzite	Silica sand for cement plant	Amherst / 31G15	15
24	Ormstown	La Compagnie Bon Sable ltée (Ormstown division)	Natural sand	Washed sand for sandblasting, smelting, ceramic glue mixtures	Beauharnois-2 / 31H04	16
25	Saint-Canut	Unimin Canada Ltd (Saint-Canut division)	Potsdam Group sandstone	Sand for glass, sandblasting, filters, ceramics	Lac-des-Deux-Montagnes- 3 / 31G09	15
26	Sainte-Clothilde	Les Sables Silco inc.	Potsdam Group sandstone	Silica-rich crushed stone for cement plant and ferrosilicon	Beauharnois-1 / 31H04	16
27	Saint-Donat	Unimin Canada Ltd (Saint-Donat division)	Quartzite	Silica sand	Lussier / 31J08	14
28	Saint-Joseph-du-Lac	La Compagnie Bon Sable ltée	Natural sand	Washed sand for masonry and sandblasting	Lac-des-Deux-Montagnes-1 / 31H12	15
29	Petit lac Malbaie	Sitec inc.	Quartzite	Silica pieces for silicon metal and silica sand for silicon carbide	Charlevoix / 21M15	3
30	Saint-Bruno-de-Guigues	Témisca inc.	Ordovician sandstone	Sand for filtering, smelting, hydraulic fracturing	Guigues / 31M06	8
31	Chromasco	Carrières Sud-Ouest inc.	Potsdam Group sandstone	Crushed stone and silica-rich aggregate for cement plant and ferrosilicon	Beauharnois / 31H05	16
32	Lac Beauchêne	Les Pierres du Nord inc.	Muscovite quartzite from the Kipawa Formation	Quartz granules for artificial stone	Campeau / 31L10	8
33	Lac Daviault	Exploration Québec / Labrador inc.	Quartzite from the Wishart Formation, Gagnon Group	Quartz granules for artificial stone	Lislois / 23B14	9

TABLE 6.3 - Peatlands, and industrial mineral and stone quarries in production in Québec in 2009 (see figure 6.2)

SITE	DEPOSIT	COMPANY	SUMMARY DESCRIPTION OF DEPOSIT	PRODUCTS	TOWNSHIP / NTS	ADMINISTRATIVE REGION
<b>Feldspar</b>						
34	Othmer mine	Dentsply Ceramco Inc.	Pegmatite-hosted K-feldspar	Dental porcelain	Othmer / 31G11	7
<b>Ilmenite</b>						
35	Lac Tio	QIT - Fer et Titane Inc.	Massive hemo-ilmenite hosted in the Havre-Saint-Pierre anorthositic Suite	Titanium slag for pigment production, cast iron and crushed ilmenite (Sorel flux)	Parker / 12L11	9
<b>Peat</b>						
36	Saint-Bonaventure	Fafard et Frères (Saint-Bonaventure division)	Peat	Sphagnum peat moss, potting soil compost, biofilters	Seigniory of Lauzon / 21L11	12
37	Saint-Henri-de-Lévis	Premier Horticulture (Saint-Henri division)	Peat	Sphagnum peat moss, potting soil compost	Seigniory of Lauzon and La Martinière Fief (Beauchamp) / 21L10	12
38	Saint-Charles	Les tourbes M.L. (Saint-Charles division)	Peat	Sphagnum peat moss, potting soil compost	Seigniory of Isle-aux-Coudres / 21M08	3
39	Isle-aux-Coudres	Tourbières Pearl	Peat	Sphagnum peat moss	Racine / 32A16	2
40	Sainte-Marguerite	Fafard et Frères (Sainte-Marguerite division)	Peat	Sphagnum peat moss	Carnier / 22D13	2
41	L'Ascension Ouest	Tourbières Lambert (L'Ascension division)	Peat	Sphagnum peat moss	Milot / 22D13	2
41	Saint-Ludger-de-Milot SW	Fafard et Frères (Milot division)	Peat	Sphagnum peat moss	Bagot / 22D07, 02	2
42	La Baie	Gazon Savard Saguenay Inc.	Peat	Sphagnum peat blocks and sphagnum peat moss	Bagot / 22D07, 02	2
43	Rivière Ouelle	Lambert Peat Moss Inc. (Rivière-Ouelle division)	Peat	Sphagnum peat moss, floral moss	Seigniory of Rivière-Ouelle 21N05	1
44	Saint-Alexandre	Tourbière Berger inc. (Saint-Alexandre division)	Peat	Sphagnum peat moss	Seigniories of îlets-du-Portage and Lachenaie / 21N12	1
45	Notre-Dame-du-Portage	Premier Horticulture (Tardif division)	Peat	Sphagnum peat moss	Seigniory of Terrebois / 21N12	1
46	Rivière-du-Loup	Premier Horticulture (Premier division)	Peat	Sphagnum peat moss, potting soil, compost, endomycorrhiza, biofilters	Seigniories of Rivière-du-Loup and Cacouna / 21N13, 14	1
46	Rivière-du-Loup	Premier Horticulture (Verbois division)	Peat	Sphagnum peat moss	Seigniories of Rivière-du-Loup and Cacouna / 21N13, 14	1
46	Rivière-du-Loup	Premier Horticulture (Saint-Laurent division)	Peat	Sphagnum peat moss	Seigniories of Rivière-du-Loup and Cacouna / 21N13, 14	1
46	Rivière-du-Loup	Tourbière Michaud Itée	Peat	Sphagnum peat moss	Seigniories of Rivière-du-Loup and Cacouna / 21N13, 14	1

TABLE 6.3 - Peatlands, and industrial mineral and stone quarries in production in Québec in 2009 (see figure 6.2)

SITE	DEPOSIT	COMPANY	SUMMARY DESCRIPTION OF DEPOSIT	PRODUCTS	TOWNSHIP / NTS	ADMINISTRATIVE REGION
46	Rivière-du-Loup	Les tourbes M.L. (Rivière-du-Loup division)	Peat	Sphagnum peat moss	Seigniories of Rivière-du-Loup and Cacouna / 21N13, 14	
46	Rivière-du-Loup	Tourbière Berger inc.	Peat	Sphagnum peat moss, potting soil, peat granules	Seigniories of Rivière-du-Loup and Cacouna / 21N13, 14	
46	Rivière-du-Loup	Tourbière Henri Théberge et associés	Peat	Sphagnum peat moss	Seigniories of Rivière-du-Loup and Cacouna / 21N13, 14	
46	Rivière-du-Loup	Tourbière Omer Bélanger	Peat	Sphagnum peat moss	Seigniories of Rivière-du-Loup and Cacouna / 21N13, 14	
47	Île-Verte, Est	Tourbière Réal Michaud et fils	Peat	Sphagnum peat moss	Seigniority of Isle-Verte / 22C03	
48	Saint-Eugène-de-Ladrière	La tourbière Yvon Bélanger	Peat	Sphagnum peat moss	Seigniority of Nicolas-Rioux 03 / 22C07	
48	Saint-Fabien-sur-Mer	La tourbière Rio-Val	Peat	Sphagnum peat moss	Seigniority of Nicolas-Rioux 03 / 22C07	
48	Saint-Fabien	Tourbière du Port-Pic	Peat	Sphagnum peat moss	Seigniority of Nicolas-Rioux 03 / 22C07	
48	Saint-Fabien	Tourbière Berger inc. (Saint-Fabien division)	Peat	Sphagnum peat moss	Seigniority of Nicolas-Rioux 03 / 22C07	
49	Rivière-Blanche	Premier Horticulture (Saint-Ulric division)	Peat	Sphagnum peat moss	Matane / 22B13	1
49	Saint-Ulric	Les tourbes M.L. (Saint-Ulric division)	Peat	Sphagnum peat moss	Matane / 22B13	1
50	Les Escoumins	Lambert Peat Moss Inc. (Anse-aux-Basques division)	Peat	Sphagnum peat moss	Bergeronnes / 22C06	9
50	La Petite Romaine	Tourbières Lambert (Saint-Paul-du-Nord division)	Peat	Sphagnum peat moss	Iberville / 22C06	9
51	Sainte-Thérèse Colombier	Tourbière Omer Bélanger (Sainte-Thérèse division)	Peat	Sphagnum peat moss	Betsiamites / 22C15	9
52	Pointe-Lebel	Premier Horticulture (Sogevex division)	Peat	Sphagnum peat moss	Manicouagan / 22F01	9
53	Port-Cartier Ouest	Les tourbes M.L. (Port-Cartier division)	Peat	Sphagnum peat moss, sphagnum peat blocks	Babel / 22J02	9
53	Port-Cartier Ouest	Exportations Daniel Sage inc.	Peat	Sphagnum peat moss	Babel / 22J02	9
54	Ville de Sept-Îles	Les tourbes M.L. (division tourbières Sept-Îles)	Peat	Sphagnum peat moss	Letellier / 22I05	9
54	Rivière Moisie	Premier Horticulture (Sept-Îles division)	Peat	Sphagnum peat moss	Moisie / 22I05	9
55	Saint-Jacques	Shigawake Organics Ltd	Peat	Sphagnum peat moss	Hope / 22A03	11

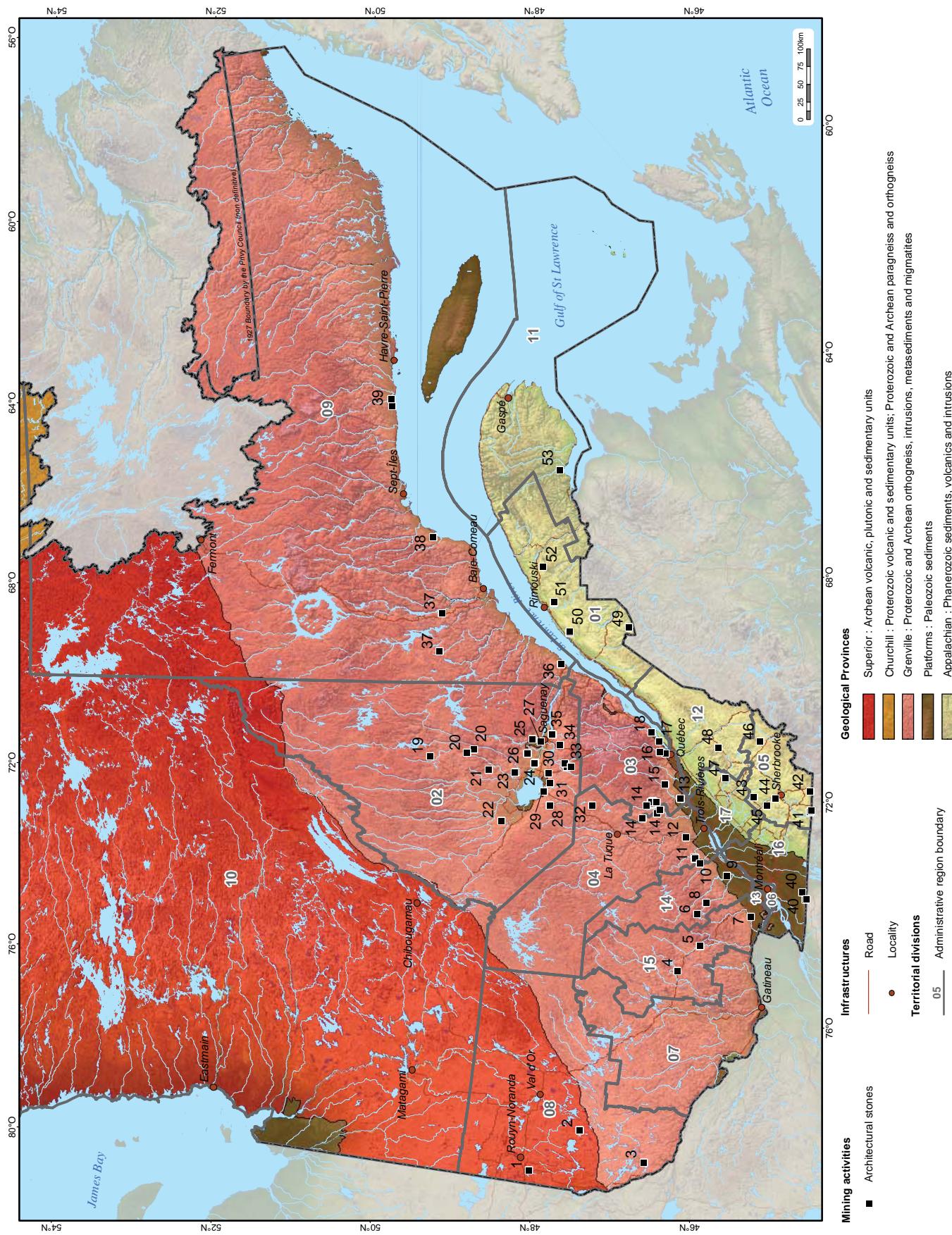


TABLE 6.4 – Architectural stone quarries exploited in Québec in 2009 (see figure 6.3)

SITE	LOCATION	HOLDER	TYPE OF ROCK - PRODUCT <sup>1</sup>	COMMERCIAL NAME	NTS	ADMINISTRATIVE AREA	MINING TITLES
1	Beaudry	Les Pierres du Nord	Biotite schist - BS	Schiste Nordic	32D03	8	BEX 86
2	Winneway	Polykor inc.	Granite - DS	Winneway	31M09	8	BEX 167
2	Winneway	Polykor Inc.	Granite - DS	Winneway	31M09	8	BEX 323
3	Témiscaming	Les Pierres du Nord	Muscovite quartzite - BS	Aventurine	31L10	8	BEX 355
4	Guénette	Rock of Ages Canada Ltd	Monzogranite - DS, MO	Laurentian Pink, Autumn Pink	31J11	15	CM 79
5	Labelle	Les Pierres Mitchell Inc.	Paragneiss - BS	–	31J07	15	BEX 330
5	Labelle	Les Pierres Mitchell Inc.	Paragneiss - BS	–	31J07	15	BEX 337
5	Labelle	Les Pierres Naturelles Durand Enr.	Paragneiss - BS	–	31J07	15	BEX 76
6	Saint-Donat-de-Montcalm	Carrières F. L. Inc.	Gneiss - BS	–	31J08	14	BEX 140
7	Mirabel	Les Pierres Saint-Canut Ltd	Sandstone - BS	Saint-Canut Sandstone	31G09	15	None
8	Notre-Dame-de-la-Merci	A. Lacroix et Fils Granit Ltée	Anorthosite - DS	Orion	31J05	14	BEX 255
9	Joliette	Firstake Capital Corporation	Limestone - BS	Joliette Gris, Joliette Jaune	31J03	14	None
10	Saint-Didace	A. Lacroix et Fils Granit Ltée	Quartz Mangerite - DS	Nordix Red	31J06	14	None
11	Saint-Alexis-des-Monts	A. Lacroix et Fils Granit Ltée	Quartz Mangerite - DS	Autumn Brown	31J06	4	BEX 463
11	Saint-Alexis-des-Monts	Polykor Inc.	Quartz Mangerite - DS	Newton Brown	31J06	4	BEX 174
11	Saint-Alexis-des-Monts	Granicor Inc.	Quartz Mangerite - DS, CS	Autumn Brown	31J06	4	None
11	Saint-Alexis-des-Monts	Polykor Inc.	Quartz Mangerite - DS	Newton Brown	31J06	4	None
12	Shawinigan	Les Entreprises Élie Grenier Inc.	Gneiss - BS	–	31J10	4	None
13	Saint-Marc-des-Carrières	Graymont (Portneuf) Inc.	Limestone - DS	Saint-Marc Limestone	31J09	3	None
13	Saint-Marc-des-Carrières	Les Pierres de Rocaille du Québec	Limestone - BS	–	31J09	3	None
14	Rivière-à-Pierre	A. Lacroix et Fils Granit Ltée	Quartz mangerite - DS	Atlantic Blue	31P01	3	BEX 178, 372
14	Rivière-à-Pierre	A. Lacroix et Fils Granit Ltée	Quartz mangerite - DS	Forest Green	31P01	3	BEX 349
14	Rivière-à-Pierre	A. Lacroix et Fils Granit Ltée	Farsundite - DS	Salmon Brown	31P01	3	BEX 366, 367
14	Rivière-à-Pierre	A. Lacroix et Fils Granit Ltée	Gneiss - DS	Silver Mist	31P01	3	BEX 378
14	Rivière-à-Pierre	A. Lacroix et Fils Granit Ltée	Farsundite - DS	Deer Brown, Atlantic Green, Deer Brown D.D.	31P01	3	BM 723, 746

TABLE 6.4 – Architectural stone quarries exploited in Québec in 2009 (see figure 6.3)

SITE	LOCATION	HOLDER	TYPE OF ROCK - PRODUCT <sup>1</sup>	COMMERCIAL NAME	NTS	ADMINISTRATIVE AREA	MINING TITLES
14	Rivière-à-Pierre	A. Lacroix et Fils Granit Ltée	Farsundite, quartz manegite quartzifère - DS	Forest Green, Atlantic Green, Atlantic Blue	31P01	3	CM 488
14	Rivière-à-Pierre	Granicor Inc.	Farsundite - DS, CS	New New	31116	3	None
14	Rivière-à-Pierre	Granicor Inc.	Farsundite - DS, CS	Abbey Rose	31P01	3	None
14	Rivière-à-Pierre	Granicor Inc.	Mangerite and quartz jötunite - DS, MO, CS	Prairie Green	31P01	3	BEX 164, 165
14	Rivière-à-Pierre	Granicor Inc.	Quartz mangerite, farsundite - DS, CS	Nara	31P01	3	BEX 231
14	Rivière-à-Pierre	Granite D. R. C. Inc., Gestrock	Farsundite - DS, BS, CS	Canadian Caledonia, Boca Dark	31P01	3	None
14	Rivière-à-Pierre	Polycor Inc.	Farsundite - DS	Ashen Pink	31116	3	None
14	Rivière-à-Pierre	Polycor Inc.	Farsundite - DS, CS	Caledonia, Caledonia Dark	31P01	3	None
14	Rivière-à-Pierre	Polycor Inc.	Farsundite - DS, CS	Caledonia Dark	31P01	3	BEX 33
14	Rivière-à-Pierre	Polycor Inc.	Farsundite - DS	Riviera	31116	3	BEX 114
14	Rivière-à-Pierre	Polycor Inc.	Quartz mangerite - DS	Boreal Green	31116	3	BEX 333
15	Saint-Raymond	A. Lacroix et Fils Granit Ltée	Gneiss - DS	Rainbow	21L13	3	None
16	Charlesbourg	Construction B. M. L.	Limestone - BS	–	21L14	3	None
16	Québec	Les Pierres S.D. Ent.	Limestone - BS	–	21L14	3	None
16	Sainte-Brigitte- de-Laval	Sablière Vallière Inc.	Granit block - BS	–	21L14	3	None
17	Château-Richer	Carrière Laplante Enr.	Calcaire - BS	–	21L14	3	None
18	Saint-Joachim	Ladufo Inc.	Calcaire - BS	–	21M02	3	None
19	Chute-des-Passes	A. Lacroix et Fils Granit Ltée	Gneiss - DS	New Rainbow	22E14	2	BEX 377
20	Chute-des-Passes	A. Lacroix et Fils Granit Ltée	Gabbroic anorthosite - DS	Nordic Café	22E06	2	BEX 471
20	Chute-des-Passes	Polycor Inc.	Gabbroic anorthosite - DS	Kodiac	22E06	2	BEX 402
21	Chute-des-Passes	Polycor Inc.	Farsundite - DS	Astra	22E04	2	BEX 1
22	Saint-Thomas- Didyme	Granicor Inc.	Quartz mangerite - DS, CS	Acajou	32A15	2	None
23	Chute-du-Diable	Granicor Inc.	Anorthosite - DS, MO, CS	Canadian Black (Peribonka)	22D13	2	None
23	Chute-du-Diable	Granicor Inc.	Anorthosite - DS, MO, CS	Canadian Black (Peribonka)	22D13	2	BEX 449
24	Saint-Nazaire	A. Lacroix et Fils Granit Ltée	Leucogabbronorite - DS	Nordix Green, Atlantic Black, Forest Black	22D12	2	Aucun (2 carrières)

TABLE 6.4 – Architectural stone quarries exploited in Québec in 2009 (see figure 6.3)

SITE	LOCATION	HOLDER	TYPE OF ROCK - PRODUCT <sup>1</sup>	COMMERCIAL NAME	NTS	ADMINISTRATIVE AREA	MINING TITLES
24	Saint-Nazaire	A. Lacroix et Fils Granit Ltée	Leucogabbronorite - DS	Nordix Green, Atlantic Black	22D12	2	BEX 148
24	Saint-Nazaire	Granicor Inc.	Leucogabbronorite - DS, MO, CS	Cambrien	22D12	2	BEX 332
24	Saint-Nazaire	Polykor Inc.	Leucogabbronorite - DS, MO	Cambrien Black	22D12	2	BM 705 (2 carrières)
25	Saint-Honoré	Les Pierres Naturelles Tremblay	Limestone - BS	–	22D11	2	None
26	Bégin	A. Lacroix et Fils Granit Ltée	Quartz mangerite - DS	Atlantic Pink	22D11	2	None
26	Bégin	Granicor Inc.	Quartz mangerite - DS, CS	Granville	22D11	2	None
27	Tremblay	Carrière 500	Limestone - BS	–	22D06	2	None
28	Saint-François-de-Sales	A. Lacroix et Fils Granit Ltée	Quartz mangerite - DS	Spring Green	32A08	2	BEX 203
29	Chambord	A. Lacroix et Fils Granit Ltée	Limestone - DS	Chambord Limestone	32A08	2	None
30	Saint-André-du-Lac-Saint-Jean	Jean-Guy Simard et Fils	Quartz mangerite - DS	Saint-André Green	22D05	2	BEX 80
31	Métabetchouan	Polykor Inc.	Farsundite - DS	Canadian Violetta	22D05	2	None
32	La Tuque	GraniStab International Inc.	Gabbro - DS	Heritage Black	31P16	4	BEX 405
33	Réserve faunique des Laurentides	A. Lacroix et Fils Granit Ltée	Farsundite - DS	Autumn Harmony	22D03	2	BEX 225
33	Réserve faunique des Laurentides	Granicor Inc.	Quartz mangerite - DS, CS	Laurentian Green	22D04	2	BEX 421
33	Réserve faunique des Laurentides	Polykor Inc.	Quartz Jotunite - DS, MO	Laurentian Green	22D04	2	BEX 210
34	Latrière	Intergestion GL inc.	Stromatolite dolostone block - BS	Pikauba	22D03	2	BEX 343
35	La Baie	Granicor Inc.	Farsundite - DS, CS	Polychrome	22D07	2	None
35	La Baie	Polykor Inc.	Farsundite - DS	Polychrome	22D07	2	None
35	La Baie	Sablière BY inc.	Granit Block - BS	–	22D07	2	None
36	Grandes-Bergeronnes	Granicor Inc.	Gneiss - DS, CS	Tadoussac	22C04	9	None
37	Lac Poulin	Granijem Inc.	Granit - DS	Nordic Frost	22F14	9	BEX 490
37	Manic 3	Granijem Inc.	Gneiss - DS	Manic	22F15	9	BEX 489
38	Rivière-Pentecôte	Polykor Inc.	Orthositte - DS	Nordic Black	22G14	9	BEX 155
39	Magpie	Granijem Inc.	Hypersthene Syenite - DS	Anticosti	22I08	9	BEX 436
39	Magpie	Polykor Inc.	Hypersthene Syenite - DS	Picasso	22I07	9	BEX 419
40	Havelock	Carrières Ducharme inc.	Grès - BS	Ducharme	31H04	16	None (2 quarries)
40	Hemmingford	Les Pierres naturelles Guy Lefort	Sandstone and limestone blocks - BS	–	31H04	16	None
41	Stanstead	Centre du Granite Beebe Inc.	Granite - DS, BS	Beverly Grey	31H01	5	None

TABLE 6.4 – Architectural stone quarries exploited in Québec in 2009 (see figure 6.3)

SITE	LOCATION	HOLDER	TYPE OF ROCK - PRODUCT <sup>1</sup>	COMMERCIAL NAME	NTS	ADMINISTRATIVE AREA	MINING TITLES
41	Stanstead	Polykor Inc.	Granodiorite - DS, MO	Stanstead Grey	31H01	5	None
41	Stanstead	Rock of Ages du Canada Ltée	Granodiorite - DS, MO	Stanstead Grey	31H01	5	None
42	Stanhope	Granicor Inc.	Granodiorite - DS, MO, SC	Snow White	21E04	5	None
43	Asbestos	Ardobec Inc.	Slate - BS	–	21E12	5	None
44	Bromptonville	Ardoise 55 Inc.	Slate - DS, BS	–	21E05	5	None
45	Melbourne	Maurice Houle	Slate - DS	–	31H09	5	None
46	Saint-Sébastien	Polykor Inc.	Granite - DS	St-Sébastien Grey	21E10	5	None
47	Saint-Ferdinand	Les Carrières St-Ferdinand Inc.	Sandstone, dolomite - BS	–	21L04	17	None
48	East Broughton	Les Pierres Stéatites Inc.	Stearite, talc-carbonate rock, serpentinite - RS	–	21L03	12	None
49	Saint-Marc-du-Lac-Long	Glendyne Inc.	Slate - BS, UT	La Canadienne, La Québécoise	21N07	1	None
50	Saint-Mathieu-de-Rioux	J.-C. Ouellette	Sandstone - BS	–	22C03	1	None
50	Saint-Mathieu-de-Rioux	Les Pierres St-Mathieu Enr.	Sandstone - BS	Grès Basques	22C02	1	BEX 460
51	Mont-Lebel	Entreprises Antoine Jean inc.	Siltstone - BS	–	22C08	1	None
51	Mont-Lebel	Les Pierres Naturelles du Québec	Siltstone - BS	–	22C08	1	None
52	Saint-Cléophas	Carrière Bernier	Siltstone - BS	–	22B05	1	None (2 quarries)
53	Maria	Polykor inc.	Limestone breccia - DS, DeS	Cascapédia	22A04	11	None

1. See legend of abbreviations in Appendix I

# MINE SITE REHABILITATION

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*Johanne Cyr and Jean Dionne*

An amount of \$328M was recorded in the public accounts in 2009 under environmental liabilities, including \$198M for the rehabilitation of 45 mine sites and 275 exploration sites in Nunavik under the responsibility of the State.

In 2008-2009, an amount of \$15.2M was spent on rehabilitation work performed on abandoned mine sites, including \$10.1M at the Aldermac site, \$2.0M at the Manitou site, and \$1.8M at the Eustis site. Various activities such as characterization, stabilization, and seeding were conducted on the Montauban, Barvue, Bevcon, and Opemisca sites. Clean-up operations continued on mineral exploration sites in Nunavik.

In 2009-2010, rehabilitation work continues at the following sites:

- Manitou, Aldermac, Bevcon (Abitibi-Témiscamingue);
- Montauban (Mauricie-Bois-Francs);
- Opemisca and the Chibougamau mining camp (Nord-du-Québec);
- Eustis and Capelton (Estrie);
- St. Lawrence Columbium (Laurentides);
- Sand pit 22F-08-007 (Côte-Nord);
- Consumers Industrial (Lanaudière); and
- Exploration sites in Nunavik.



# **Appendix I**

## **Legend of abbreviations**



# APPENDIX I

## Legend for abbreviations used in tables related to the types of exploration works, the products and uses of architectural stones.

### Prospecting and geology works

B (mt:g/t)	Bulk sampling including tonnage and grade
or (mt: % Xx)	(metric tons:gram per ton) or (metric tons: % Xx)
Bs	Block sampling for dimension stones
Ct	Characterization tests and analysis (peat)
D (#h:m)	Diamond drilling (number of holes:total meters)
G	Geological mapping
Min	Mineralogical studies
Pg	Unspecified prospecting and geological works
Pr	Prospection
Pt	Polishing test
Rcd (#h:m)	Reversed circulation drilling (number of holes:total meters)
Rsi	Remote sensing interpretation
S	Sampling
T	Trenching and stripping

### Geochemical surveys

Gs	Unspecified geochemical surveys
Gs(e)	Esker geochemical survey
Gs(h)	Humus geochemical survey
Gs(l)	Lake sediments geochemical survey
Gs(r)	Lithogeochemical survey (rock)
Gs(s)	Stream sediments geochemical survey
Gs(sl)	Soils geochemical survey
Gs(t)	Till geochemical survey

### Geophysical surveys

Gp	Unspecified geophysical survey
GpEl	Electric survey
GpEm	Electromagnetic survey
GpGr	Gravimetry survey
GpMa	Magnetometric (magnetic) survey
GpMt	Magnetotelluric survey
GpRa	Radiometric survey
GpSi	Seismic survey
(A)	aerial, (B) borehole, (G) ground

### Other types of works

Env	Environmental studies
FM	Feasability and/or market studies
M	Mining site rehabilitation
Met	Metallurgical test
Re	Reserve and resource evaluation
TE	Technical evaluation

### Products and usages of architectural stones

BS	Building stone and landscaping
CS	Curbstone
DeS	Decorative stone
DS	Dimension stone
MO	Monument stone
RS	Refractory stone
RT	Roofing tiles

*Italic* Exploration work done on mine properties  
**Bold** Advanced exploration project



## **Appendix II**

### **The Mineral Development Process**



TABLE II - The Mineral Development Process.

# The Mineral Development Process

## Mineral Resource Assessment

### Exploration

### Mine Complex Development

Phase	VRM	EX- 1	EX- 2	EX- 3	EX- 4	EX- 5	MV- 1	MV- 2	MV- 3	MV- 4	ACM- 1 Preparation and development	ACM- 2 Mining operations	ACM- 3 Site rehabilitation
Work	Surveys research and metallurgical syntheses.	Exploration planning.	Regional reconnaissance and surveys.	Prospecting and ground surveys on anomalies.	Verification of anomalies and showings.	Discovery and delineation of a deposit with estimated tonnage.	Definition of deposit with estimated tonnage.	Definition of technical parameters (Engineering).	Definition of economic parameters.	Feasibility study.	Construction Start-up of mine.	Production and marketing.	Mine closure. Mine site rehabilitation.
Duration				1 to 5 years							2 to 3 years		
Objectives	Select targeted minerals and metals. Establish objectives and strategies. Select prospective target areas.	Acquire properties. Confirm the presence, position and characteristics of anomalies.	Determine the source of anomalies. Find mineral shovings. Acquire additional properties as needed.	Discover, confirm and delineate a first mineral inventory for the deposit. Assess its economic potential in a preliminary fashion. First pre-feasibility study.	Establish technical feasibility. Establish mining plans, schedules and estimations for the project. Plan and design project engineering.	Establish technical feasibility. Establish mining plans, schedules and estimations for the project. Plan and design project engineering.	Establish technical feasibility. Establish mining plans, schedules and estimations for the project. Plan and design project engineering.	Establish technical feasibility. Establish mining plans, schedules and estimations for the project. Plan and design project engineering.	Establish technical feasibility. Establish mining plans, schedules and estimations for the project. Plan and design project engineering.	Establish technical feasibility. Establish mining plans, schedules and estimations for the project. Plan and design project engineering.	Complete mine development and construction work in line with budget and schedule. Prepare start-up of mine and processing plant.	Achieve commercial production as per planned rate and specifications. Achieve profitability in a sustainable development perspective.	Relubilate mine site to safe and visually acceptable level and environment quality compatible with future land uses.
Evaluation methods	Surveys, research, and geoscientific, metallogenic and economic synthesis by governments, universities, and other research groups. Assess legal and political context.	Studies and selection of metals and minerals. Review and synthesize geological and geochemical information for various regions. Assess legal and political context.	Remote sensing, aerial photography, airborne geophysics, Prospecting, geochemistry and geochemistry. Assessment and selection of anomalies.	Geological mapping and other surveys. Trenching, mapping, sampling, drilling, geophysics. Preliminary resource estimation. Environmental characterization.	Geological mapping and other surveys. Overview and selection of anomalies for follow-up.	Bulk sampling. Pilot-scale tests, engineering and cost estimates for the mine, the ore concentration process, infrastructure, environmental protection and site rehabilitation.	Market price, and financial studies. Analysis of technical, economic, financial, social, political and environmental risks.	Market price, and financial studies. Analysis of technical, economic, financial, social, political and environmental risks.	Market price, and financial studies. Analysis of technical, economic, financial, social, political and environmental risks.	Market price, and financial studies. Analysis of technical, economic, financial, social, political and environmental risks.	Due diligence review of all available information on the project. Assess profitability, risks, and positive aspects of the project.	Project management and quality improvement of mine start-up and training of personnel.	Decommissioning of mine. Environmental reclamation and monitoring.
Targeted results	Databases, maps, and models.	Exploration projects	Regional anomalies	Local anomalies	Mineral showings	Deposit with estimated tonnage	Determine mineral resources	Determine mining methods	Technical and economic feasibility	Ore deposit Decision to go into production	Start-up of production	Profitability	Rehabilitated mine site
Mineral Inventory	MINERAL POTENTIAL	NEW UNIDENTIFIED, SPECULATIVE, HYPOTHETICAL OR MODELLED MINERAL RESOURCES	INFERRED MINERAL RESOURCES	MEASURED AND INDICATED MINERAL RESOURCES	PROVEN AND PROBABLE MINERAL RESERVES								
Investment Risk	Moderate	Low investment level, but gradually increasing (\$0.1M to \$5M). Very high risk of loss that gradually decreases pending successful results.											

Source: Modifications coordinated by S. Larivière in August 2001, based on SOQUEM Annual Report 1976-77, p.4-5 and Vallee, M. 1992, Guide to the Evaluation of Gold Deposits, CIM Special Volume, p.4.

Graphic design: Charlotte Gagnier

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# **Appendix III**

## **References**



## Appendix III

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