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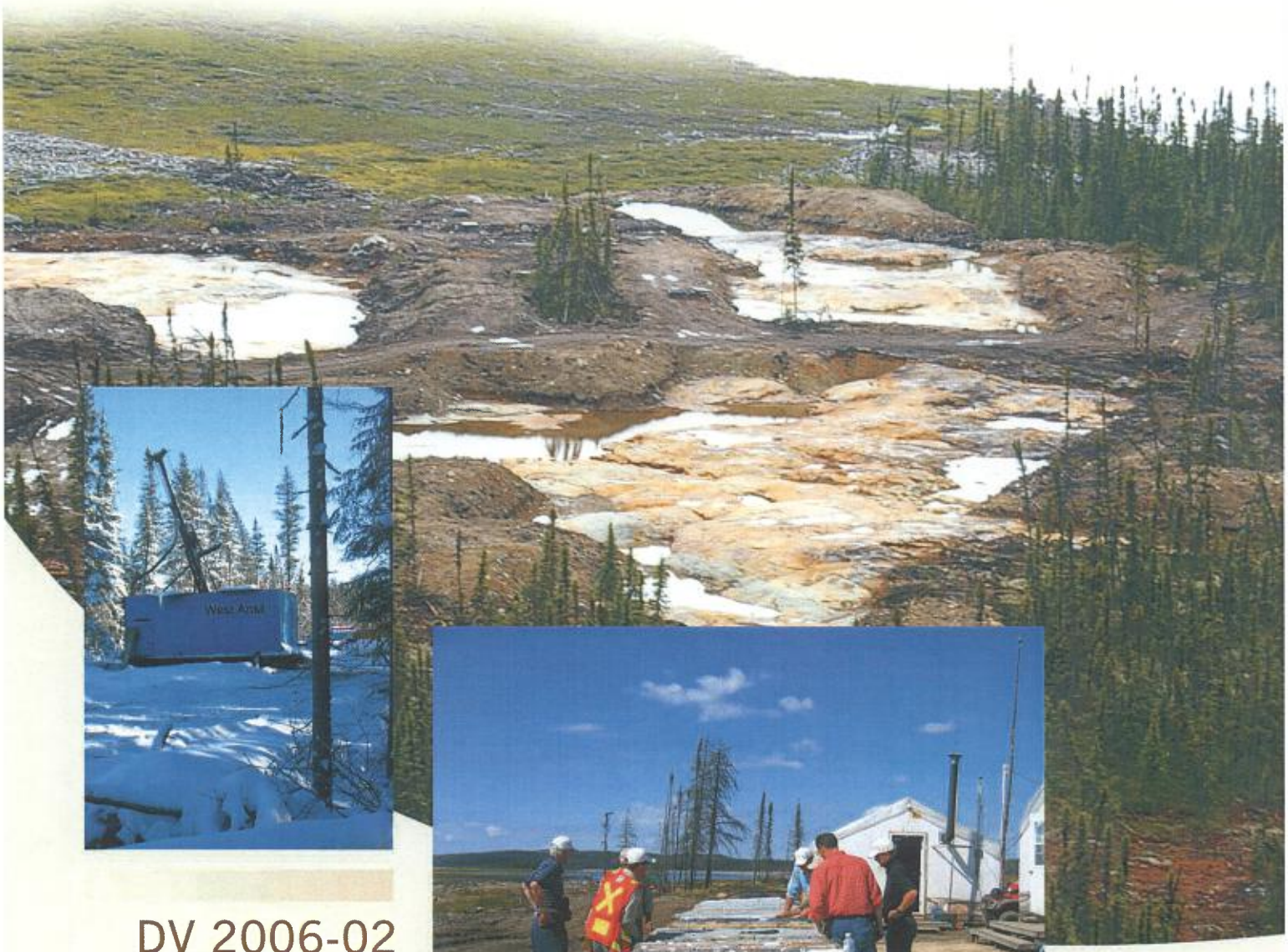

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DISCLAIMER

The data compiled in this report come from several sources, including questionnaires addressed to prospectors, to directors of regional 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. The authors disclaim all responsibility for reproducing any errors originating from these sources but are nonetheless responsible for mistakes introduced while writing the report.

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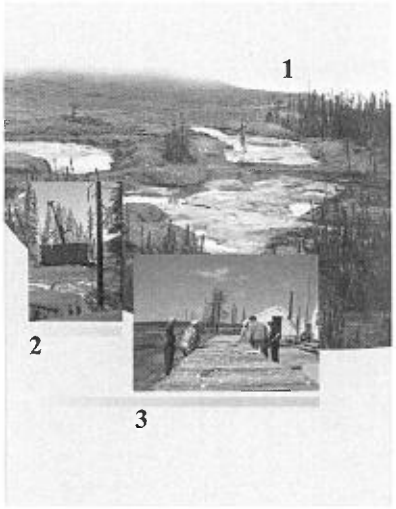

Cover page

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Photographs:

1 - Oblique aerial view of Virginia Gold Mines Inc. Eleonore gold deposit
(photograph from Virginia Gold Mines Inc.)
2 - Ongoing diamond drilling in the West Ansil project
(photograph from Falconbridge Ltd and Alexis Minerals Corporation)
3 - Virginia Gold Mines Inc. staff examining drill core from the Eleonore deposit
(photograph from Virginia Gold Mines Inc.)

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Highlights

This annual report for 2005 provides an overview of mineral exploration projects for each geological province or subprovince in Québec and outlines the mineral potential of Québec's landmass. In 2005, exploration and deposit appraisal expenditures reached $226.5M (preliminary data), similar to the amount of $227.2M recorded in 2004. In 2004, exploration and deposit appraisal activities focused on precious metals, namely gold ($135M, 60% of overall spending), as well as copper and zinc ($23M, 10%) mainly in northwestern Québec, nickel and copper ($34M, 15%) essentially in Ungava, diamond ($28M, 12%) especially north of the Otish Mountains, and other commodities ($7M, 3%).

In the gold sector, certain advanced projects reached significant milestones. In Val-d'Or, **Century Mining Corp.** resumed commercial gold production at the Sigma pit in late May 2005. At the Casa Berardi project north of La Sarre, **Aurizon Mines Ltd** began shaft sinking and continued underground development work as well as definition and exploration drilling. Commercial production, averaging 175,000 ounces of gold per year, is slated to commence in November 2006. **Agnico-Eagle Mines Ltd** announced in July the start-up of the Goldex mining project, where reserves stand at 21.77 Mt at 2.4 g/t Au, with an investment of $176M over the 3-year construction period. Commercial production, averaging 170,000 ounces of gold per year, is slated to begin in 2008.

Many advanced underground gold exploration projects were announced or continued during the year. **Agnico-Eagle Mines Ltd** launched a $30M program on the Lapa property near Cadillac, which includes underground development following the sinking of a shaft to 823 m depth. Probable reserves are estimated at 4.08 Mt at 8.91 g/t Au. Near Malartic, **Richmont Mines Inc.** invested more than $10M on its East Amphi property, in order to advance underground development and complete a bulk-sampling program of 25,900 tonnes. At the Kiena mine complex, **Wesdome Gold Mines Inc.** conducted delineation drilling in the VC, 388, North, and Martin zones, and excavated two exploration drifts on its Kiena/Wesdome project. Near Val-d'Or, **Alexis Minerals Corporation** began excavating a 1.5-km ramp in September 2005 and completed 18,000 m of drilling on the Lac Herbin project, in order to upgrade inferred resources currently estimated at 1.07 Mt at 7.3 g/t Au.

Interesting results were also announced on other gold exploration projects in the Abitibi region. On the Wood-Pandora project, located a few kilometres west of Lapa, **Globex Mining Enterprises Inc.** and **Queenston Mining Inc.** intersected 6.0 m grading 25.35 g/t Au. At the Bachelor Lake project near Desmaraisville, **Metanor Resources Inc.** and **Halo Resources Ltd** conducted underground drilling and released a new resource estimate of 0.84 Mt at 7.79 g/t Au in the measured and indicated categories. On the Windfall Lake property, located in the Urban-Barry belt east of Lebel-sur-Quévillon, **Noront Resources Ltd** intersected in drillhole a gold-bearing stockwork (5.9 g/t Au over 7.05 m). On a contiguous property, **Murgor Resources Inc.** encountered high-grade gold mineralization in drillhole (10.46 g/t Au over 11 m).

The James Bay region garners more and more attention for gold since the discovery by **Virginia Gold Mines Inc.** of the Roberto mineralized system on the Eleonore property northeast of Opinaca Reservoir. This high-grade gold system, now traced in drillhole over a strike length of 1.9 km and to a vertical depth of 900 m, consists of three main zones: Roberto (22.56 g/t Au over 15 m), Mid-Roberto (13.35 g/t Au over 10.8 m; 11.11 g/t Au over 5.1 m), and Roberto Est (11.23 g/t Au over 10.8 m), all of which remain open at depth and along strike. Virginia Gold Mines announced in December the signing of an agreement with **Goldcorp Inc.**, whereby the latter will acquire the Eleonore project pursuant to an approved plan of arrangement. Goldcorp intends to actively pursue exploration and development work on the project in 2006. An initial mineral resource estimate is expected for the summer 2006. This significant discovery in a new geological setting has spurred a reassessment of the regional gold potential. **Everton Resources Inc.** and **Azimut Exploration Inc.** reported the discovery of a 1.7-km-long gold-bearing trend on the A-Block of the Opinaca property, contiguous to the north of Eleonore. Surface grab samples collected in strongly metamorphosed sedimentary rocks yielded grades ranging from 0.1 to 29.07 g/t Au.

In the base metals sector, certain advanced projects reached significant milestones, but the year was shadowed in northwestern Québec by mine closures at Bouchard-Hébert and Louvicourt. In September 2005, **Campbell Resources Inc.**'s Copper Rand 5000 mine had produced 3.6 million pounds of copper and 3,944 ounces of gold, but the development of new production stopes is required to reach full commercial production. In November, **Breakwater Resources Ltd** announced the development of the past-producing Langlois mine (Zn-Ag-Cu) near Lebel-sur-Quévillon, where commercial production is slated to begin in 2007.

Promising results are also reported for several copper and zinc exploration projects. **Falconbridge Ltd** and **Alexis Minerals Corporation** announced in March a significant discovery in the Rouyn-Noranda mining camp. One intersection yielded grades of 3.57% Cu, 0.25% Zn, 0.52 g/t Au, and 7.27 g/t Ag over 52.70 m. An initial resource estimate is expected in 2006, although the depth extension of mineralized zones remains to be defined. Near Val-d'Or at the Louvex project, located 1 km from the former Louvicourt mine, **Alexis Minerals Corporation** and **Novicourt Inc.** intersected an alteration zone with stringer sulphides over a core length of 235.9 m, including a 12.4-m section at 1.48% Zn. Near Chibougamau, **Woodruff Capital Management Inc.** completed nine drillholes to test the former Lemoine mine host sequence, and intersected 3 m

grading 3.20% Zn and 0.31% Cu. **Campbell Resources Inc.** also obtained good results from several drillholes testing the depth extension of the Corner Bay deposit, including a 16.10-m interval grading 9.27% Cu.

North of the Otish Mountains, **Ashton Mining of Canada Inc.** and **SOQUEM INC.** continued drill-testing diamond-bearing kimberlite bodies at Renard 2, 3, 4, 7, 8, 9, and 10, as well as diamond-bearing kimberlitic dykes of the Lynx system. In April, a valuation of 459 carats of diamonds recovered from a 664-tonne bulk sample collected in 2004 from Renard 2, 3, 4, and 65, yielded a modeled value of US$88 per carat. Summer fieldwork led to the discovery of an important kimberlite dyke (Hibou) and of several kimberlitic boulders scattered between the Renard cluster and the Lynx dyke system. In November, the joint venture announced that the Renard 2, 3, 4, and 9 bodies could potentially host between 18.6 and 22.0 million carats of diamonds within an aggregate 23.2 to 27.5 million tonnes of kimberlitic material.

In the northern Québec region, the Ungava belt consistently yields new and promising nickel discoveries. **Canadian Royalties Inc.** uncovered two new zones (Ivakkak, Tootoo West). The Ivakkak zone yielded average grades of 3.3% Ni, 3.6% Cu, 1.6 g/t Pt, and 4.9 g/t Pd over a core length of 9.5 m, within a wider interval grading 1.76% Ni, 2.11% Cu and 3.95 g/t Pt+Pd over 22.5 m. The Tootoo West zone graded 1.10% Ni, 1.06% Cu, and 6.51 g/t Pt+Pd+Au over 19 m, including an interval at 31.02 g/t Pd+Pt over 2.88 m. Total resources for deposits on the Raglan South Nickel project held by **Canadian Royalties Inc.** are estimated at more than 10 million tonnes. **Knight Resources Ltd** and **Anglo American Exploration (Canada) Ltd** also reported a new discovery on the West Raglan project. The Century zone in the Greater Frontier area yielded interesting intercepts, including 7.8 m at 2.16% Ni, and 1.4 m at 3.37% Ni. **Anglo American Exploration (Canada) Ltd** and **Goldbrook Ventures Inc.** reported the discovery of two Ni-Cu-Pt-Pd showings on the Bélanger property: the Pad1/R2 zone with grades of 0.85% Ni, 1.49% Cu, 1.14 g/t Pd, and 0.14 g/t Pt over 24.73 m, and the Timtu zone with grades of 1.01% Ni, 0.63% Cu, 1.81 g/t Pd, and 0.57 g/t Pt over 8.65 m. **Falconbridge Ltd** has identified Zone 5-8, located 5 km east of the Katinniq mill, as the next core mining area at the Raglan mine. A 44.65-m section in Lens 8H yielded grades on the order of 3% Ni and 0.94% Cu.

In the Grenville Province, **Exploration Esbec Inc.** discovered a new showing north-northwest of Forestville, where grab samples yielded grades up to 1.40% Ni. Near Mont-Laurier, **Quinto Technology Inc.** carried out trenching and channel sampling and reported results including an average grade of 2.22% Cu over 6.45 m. **Matamec Exploration Inc.** namely drilled three holes along the northern extension of the former Renzy Lake mine. Best results are: 1.01% Ni and 1.24% Cu over 14.7 m. North of Port-Cartier, two prospectors discovered uranium occurrences associated with pegmatites and pink granites. Grab samples yielded grades of 2920 ppm U and 995 ppm Th.

In the Gaspésie region, on the Lac Arsenault property, **Ressources Appalaches Inc.** traced the gold-bearing Baker vein over a strike length of 80 m and down to 90 m depth. Grades of 7.4 g/t Au and 74.3 g/t Ag over 0.5 m are reported. On the Mont-de-l'Aigle property, drilling by Ressources Appalaches Inc. encountered stockwork breccias with pyrite, chalcopyrite, hematite and magnetite mineralization, over thicknesses reaching 60 m and grades on the order of 0.2% Cu. In the Bas-Saint-Laurent region, on the Sainte-Marguerite property, **Puma Exploration Inc.** confirmed in drillhole the presence and continuity of two mineralized zones consisting of subhorizontal gold-bearing quartz veins, over respective lengths of 35 and 70 m. Best results to date on these zones range from 1.6 g/t Au over 0.3 m to 40.8 g/t Au over 0.2 m.

In the architectural stone industry, **A. Lacroix et Fils Granit ltée** and **Granijem Inc.** continued the development of a number of deposits respectively located in Saint-Alexis-des-Monts and north of Saint-Ludger-de-Milot, as well as north of Baie-Comeau and near the Manic-3 hydroelectric dam. In Saint-Mathieu-de-Rioux, **Les Pierres Saint-Mathieu Inc.** began quarrying a red sandstone variety used for masonry and landscaping stone. More than 15 exploration projects for slate and marble are reported; a record high in many decades in Québec.

In the field of industrial minerals, **Junex Inc.** completed the drilling of a new well in Bécancour and increased its natural brine production capacity. In the Murdochville area, **Exploration Orbite** acquired mining rights on the Grande-Vallée red clay deposit, which contains a mineral commodity of interest for aluminium smelters, cement plants, and refractory plants.

In light of current high metal prices (gold, copper, nickel, iron, uranium) and significant discoveries recently reported for various commodities in Québec, the level of exploration and deposit appraisal activity should remain similar to that observed over the last two years. Once again, the bulk of exploration spending should be concentrated in the Abitibi and Ungava regions, but growing investments are to be expected in other regions of Québec, namely for gold and diamond in the James Bay region.

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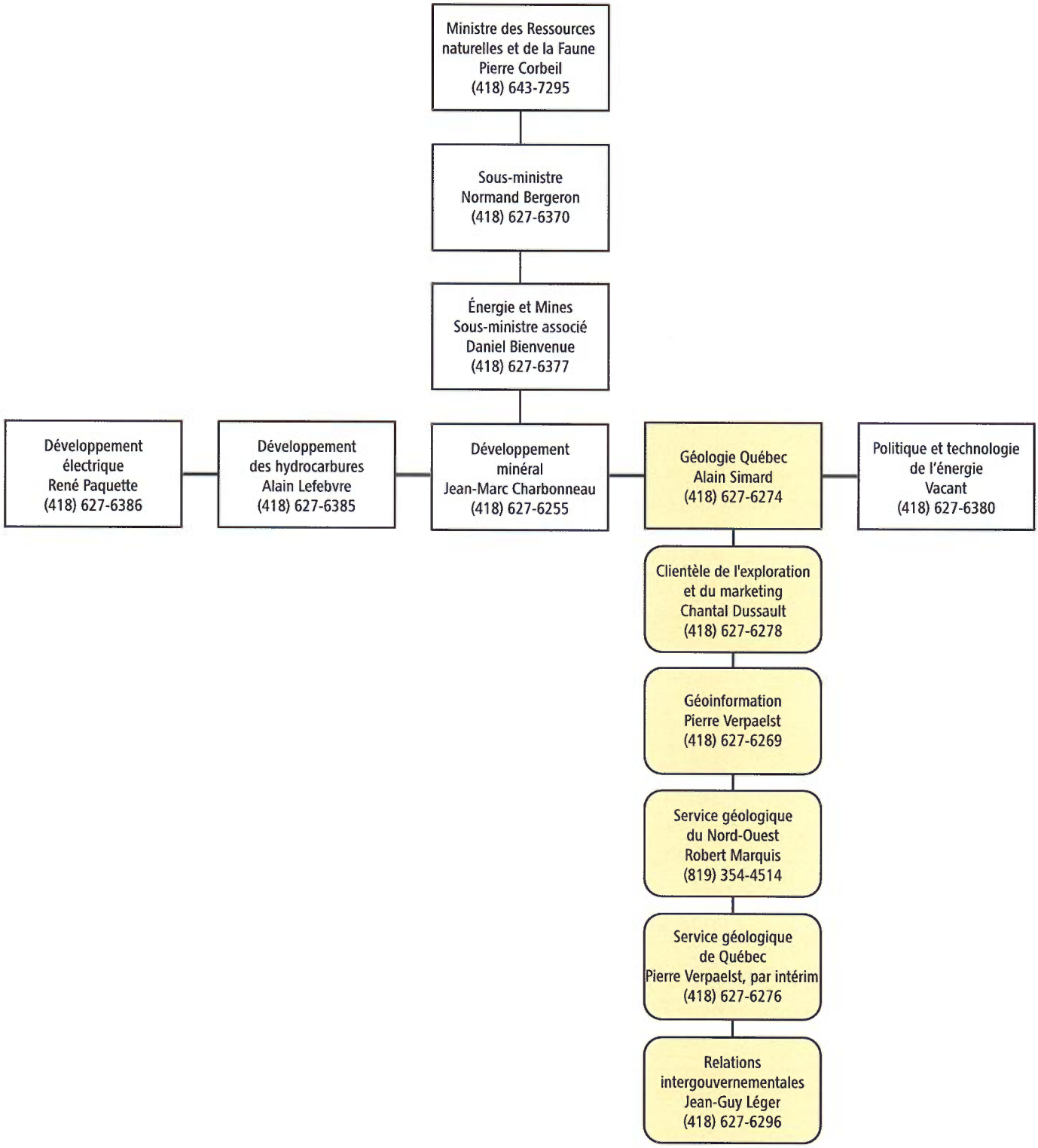
Figure 1. Geological subdivisions and contact persons.



february 2006

Summary

Chapter 1

Base and precious metals

1A

1A

Northern Superior Province (including the eastern part of the Opatica Subprovince)

Serge Perreault

The Ungava region (Nunavik) covers a vast surface area of about 350,000 km^2. Although relatively underexplored, this region offers a very promising mineral potential.

From 1998 to 2003, **Géologie Québec** completed 22 geological surveys within the scope of the Far North Project. In 2005, **Géologie Québec** continued its geological synthesis of the extensive territory covered by this program (Leclair *et al.*, 2005). In 2005, with the exception of a few technical studies and compilation work, only four exploration projects were active in the field (Table 1A-1). The latter focused on the search for diamond, uranium, and gold. The following sections describe the most significant exploration projects conducted in 2005 in the Minto and Opatica (eastern part) subprovinces.

Opatica Subprovince

The Opatica Subprovince comprises Archean metavolcanosedimentary sequences and plutonic suites located between the Abitibi Subprovince to the south and the Opinaca and Ashuanipi subprovinces to the north (Hocq, 1994; Lamothe *et al.*, 1998; *note that this Subprovince is not represented on the figure 1A-1, see the figure 1B-1 and 1E-1 for the localization of the projects*). The eastern part of the Opatica Subprovince is formed of the Brûlis Group, a basaltic to intermediate volcanic assemblage metamorphosed to the upper amphibolite facies, as well as hornblende-biotite granodiorite, hornblende monzogranite, and leucocratic biotite and locally hornblende-bearing tonalite (Lamothe *et al.*, 1988).

In the Lac Courcy area, gold showings (Courcy 1 and Courcy 2; Thériault *et al.*, 1998) associated with iron formations and mafic and felsic volcanic rocks of the Soucy and Soulard formations in the Brûlis Group were previously reported by Géologie Québec. In 2004, **SOQUEM INC.** reported the following results from samples collected in trenches on several gold showings: 91 g/t Au and 7.3 g/t Ag (DL-02), 3.3 g/t Au (Courcy 2), 4.8 g/t Au, 6 g/t Ag, and 0.25% Zn (Souche), and 2.53 g/t Au (SL-12). A channel sample from showing SL-29 yielded assays of 10.75 g/t Au over 1 m. These gold occurrences are associated with volcanogenic massive sulphides. In 2005, **SOQUEM INC.** (project 9, Figure 1A-1) continued its prospecting and mapping surveys. The company also carried out prospecting work as well as a Mag-EM survey in the Lac Vallard area (project 8, Figure 1A-1).

Paleoproterozoic Sedimentary Sequences

Paleoproterozoic continental sediments form autochthonous outliers which may be correlated with those of the Sakami Formation in the James Bay region and the Chakonipau Formation in the New Québec Orogen (Clark and Wares, 2004). These sedimentary outliers are preserved in half-grabens within the Saindon-Cambrien tectonic zone. They contain continental-type detrital rocks, comprising a lower unit from 1 to 100 m thick of mudstone, siltite, and green or red conglomerate, overlain by an upper km-scale unit of subarkosic and arkosic sandstone (Clark and Wares, 2004).

Sediment-Hosted Uranium

Outliers of Paleoproterozoic detrital rocks overlying the Archean basement of the Superior Province host uranium mineralization. The most significant occurrences are conformable and hosted in greenish argillaceous sediments located near the Archean/Proterozoic unconformity (Clark and Wares, 2004). The uranium mineralization occurs in sedimentary formations indicating reducing conditions at the base of the Sakami Formation. These mineralized zones are also associated with the presence of synsedimentary faults. The uranium mineralization is essentially composed of pitchblende. Most known showings of this type are associated with the Lac Gayot outlier (Sakami Formation).

In 2005, **Strathmore Minerals Corporation** (project 2, Figure 1A-1; Table 1A-1) conducted exploration work and geological mapping on its Dieter Lake property (Gayot outlier), in order to validate previous data acquired by other companies between 1976 and 1981 and build a new geochemistry database complementing historical data, to identify new geochemical targets and to define subsequent drill targets. Mineral resources for the Lac Gayot deposit are estimated at 50 Mt at 0.1% U_3O_8, or 10 to 15 Mt at 0.25% U_3O_8 (Fearless One; Marcoux, 1981; deposit file).

Diamond

Moorhead *et al.* (2000) stressed the importance of major brittle structural zones, locally defined by late faults, aeromagnetic lineaments, remote-sensing lineaments, and graben-type sedimentary basins, as controlling factors for the emplacement of alkaline and kimberlitic magmatism. Several major crustal lineaments transect the Bienville, Minto, and Ashuanipi subprovinces (Labbé, 2000; Labbé and Lamothe, 2001), including the Saindon-Cambrien corridor, the Allemand-Tasiat structural zone, and the Richmond Gulf structural zone (Moorhead *et al.*, 2000).

1A

In 2005, diamond exploration activities mainly consisted of reconnaissance surveys performed by **Ashton Mining of Canada Inc.** and **SOQUEM INC.** in the Lac Bienville area (project 1, Figure 1A-1).

Opportunities for Exploration

Given the current economic context, with gold prices reaching historical highs and mineral exploration financing as promising as ever, it may be of interest to know that many greenstone belts in the Minto Subprovince host promising gold occurrences, namely associated with iron formations in the Far North. For example on the Kogaluk property, **Virginia Gold Mines Inc.** and **SOQUEM INC.** reported grades of up to 60 g/t Au in grab sample, 2.85 g/t Au over 4.1 m in channel sample, and of 2.20 g/t Au over 27.9 m in drillhole, including high-grade zones at 9.89 g/t Au over 2.1 m and 14.24 g/t Au over 1.5 m.

With the sharp rise in uranium prices, uranium exploration is reaching levels unheard of since the mid-1980s. In this regard, the various outliers of Sakami Formation, which represent the remains of a former Paleoproterozoic sedimentary basin overlying the Archean basement of the Minto Subprovince, are undoubtedly worth a closer look.

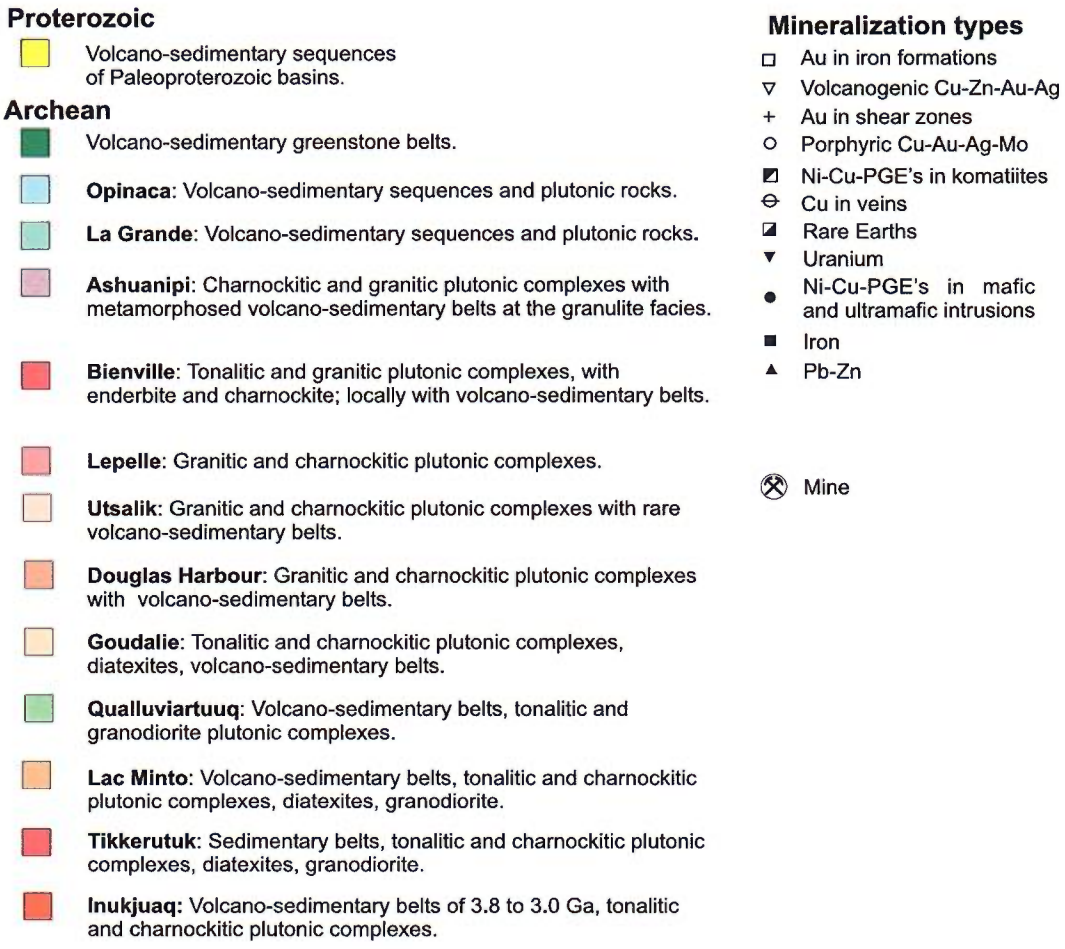


Figure 1A-1. Legend of exploration projects in the northern Superior Province for 2005.

1A

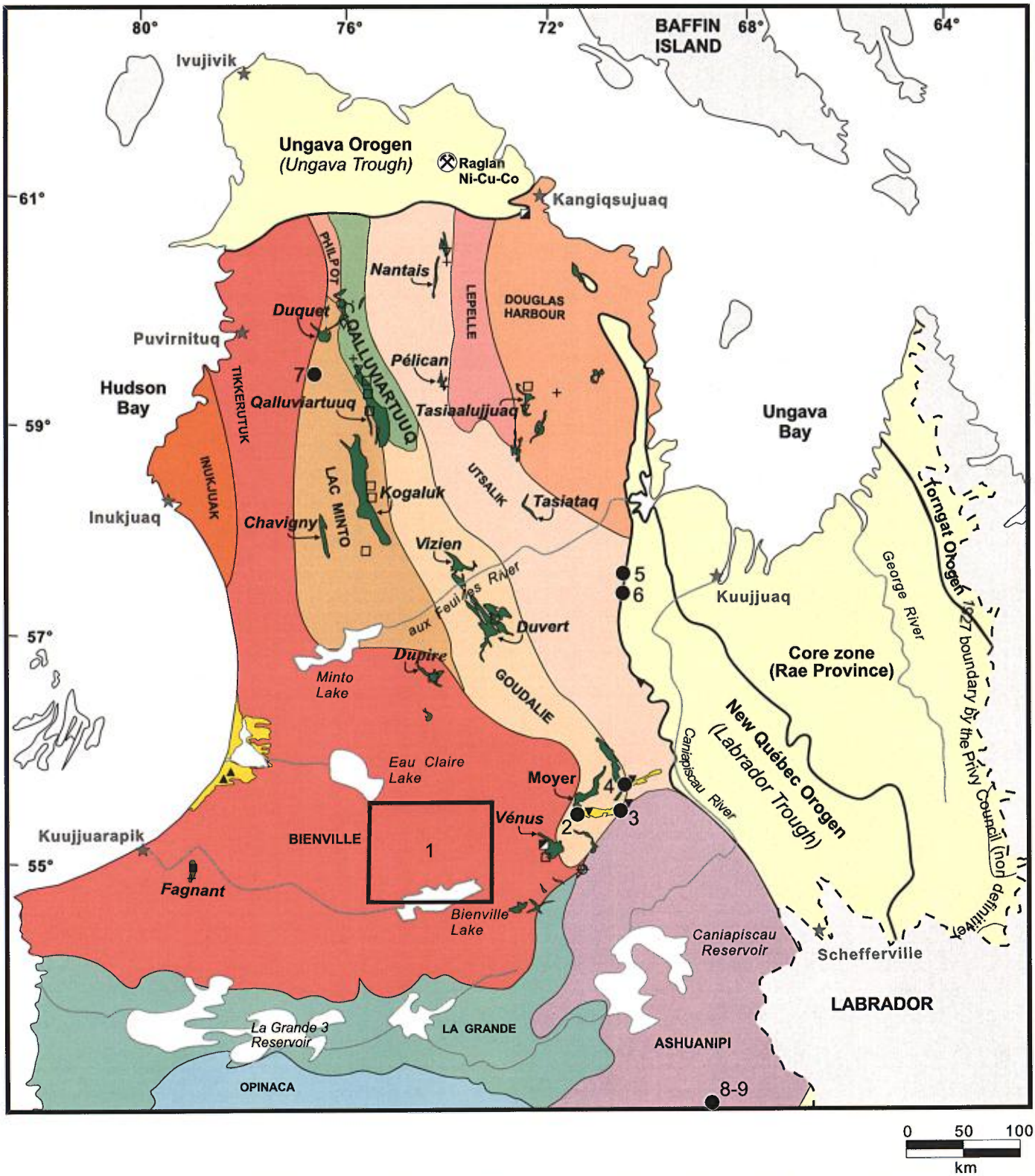


Figure 1A-1. Exploration projects in the northern Superior Province for 2005. Projects 8 and 9 are located outside of this map; see figure 1E-1 (page 43) for their location.

TABLEAU 1A-1 - Exploration projects in the northern part of the Superieur Province for 2005 (see figure 1A-1).

Nos.	NTS	COMPANIES	PROJECTS	SUBSTANCES	WORKS [1]
1	33 P	SOQUEM INC. / Ashton Mining of Canada Inc.	Ungava	Diamond	G, Gc(t), GpMa(A), GpMa(G)
2	23 M/15, 16	Strathmore Minerals Corporation	Dieter Lake	U	G, Gc(l), Gc(ro), GpEm(A), S
3	24 C/04	Waseco Resources Inc.	Pons Lake	U	TE
4	24 C/04	Waseco Resources Inc.	Fenster Lake	U	TE
5	24 L/01	URANOR Inc.	Chioak	U	TE
6	24 E/16	URANOR Inc.	Adelaïde	U	TE
7	34 O/12, 13	Canadian Royalties Inc.	Kogaluk	Ni-Cu-Co	TE
8	23 C/14	SOQUEM INC.	Lac Vallard	Au-Ag	GpEm(A), GpMa (A), Pr
9	23 C/10	SOQUEM INC.	Courcy	Au-Ag	G, Pr

1 = See abbreviation list in appendix II.

1B

James Bay Region, Central Superior Province (Opatica, Opinaca, Nemiscau, and La Grande Subprovinces)

Patrick Houle

The James Bay region lies in the central Superior Province and contains four geological subprovinces, which are, from north to south, the La Grande, Opinaca, Nemiscau, and Opatica 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 and are metamorphosed to the greenschist facies in the centre and to the upper amphibolite facies near their borders. These assemblages are intruded by a number of granitoids assigned to various plutonic suites (Moukhsil *et al.*, 2003).

The bulk of exploration work was concentrated in the Frotet-Evans (Opatica Subprovince), Lower Eastmain (Opinaca Subprovince), Upper Eastmain (Opinaca Subprovince), and La Grande (La Grande Subprovince) volcano-sedimentary belts. During the year 2005, 66 exploration projects were reported (Table 1B-1) in the James Bay region, a 35% increase relative to the 43 projects inventoried in 2004. In 2005, the main ore deposit types under investigation in this region included lode gold deposits, kimberlite-hosted diamond deposits, volcanogenic massive sulphide deposits, uranium deposits, and to a lesser extent, porphyry Cu-Au deposits associated with felsic intrusions and rare metal occurrences.

Frotet-Evans Area

Located in the centre of the Opatica Subprovince, the Frotet-Evans volcano-sedimentary belt (FEVB) is primarily composed of tholeiitic and calc-alkaline volcanic formations. The 250-km-long FEVB is subdivided into four lithotectonic segments, which are, from west to east: 1) Evans-Ouagama, 2) Storm-Evans, 3) Assinica, and 4) Frotet-Troilus. All 9 exploration projects reported in 2004 in this area are concentrated in the Frotet-Troilus segment.

Eight exploration projects were recorded in this area in 2005; these are largely concentrated in the Frotet-Troilus segment.

On the Troilus project (project 23, Figure 1B-1), prospecting by **Falconbridge Ltd** and partner **Beaufield Consolidated Resources Inc.** led to the discovery of four new anomaly zones defined along a 3.3-km trend, southwest of the Tortigny deposit (resources: 490,000 t grading 2.2% Cu, 6.2% Zn, 0.24% Pb, 61 g/t Ag, and 0.3 g/t Au). Best results come from a new polymetallic showing called *TSW*, where surface grab samples yielded assays up to 1.4% Cu, 1.6% Zn, 0.8 g/t Au, and 49.1 g/t Ag.

Inmet Mining Corporation confirmed in reverse circulation drillholes the surface extent of the Southwest copper-gold zone on the Troilus North project (project 21, Figure 1B-1). This zone is located 3.5 km southwest of the Troilus mine, at the edge of the same diorite unit occurring at the mine. Moreover, an economic scoping study was conducted during the year regarding the potential to mine additional ore (indicated resources of 6.6 Mt at 1.6 g/t Au and 0.17% Cu – 340,000 ounces of gold, and inferred resources of 2.2 Mt at 1.5 g/t Au and 0.16% Cu – 110,000 ounces of gold) below the Troilus 87 open pit from underground.

About 50 km southeast of the Frotet-Troilus segment, **Dios Exploration Inc.** defined new dispersal trains with kimberlite indicator minerals, near favourable geophysical anomalies on the Chibouki diamond property (project 19, Figure 1B-1).

Eastmain Area

The Eastmain area comprises the Lower Eastmain greenstone belt (Lower Eastmain and Middle Eastmain segments) and the Upper Eastmain greenstone belt (Upper Eastmain segment; Otish Mountains area). Archean volcano-sedimentary rocks of the Lower Eastmain greenstone belt are assigned to the Eastmain Group. This group is composed of komatiitic to rhyolitic volcanic rocks and a variety of sedimentary rocks. Paragneisses of the Auclair Formation (Nemiscau and Opinaca basins) overlie this assemblage.

In the Eastmain area, 30 projects were reported in 2005. In the Lower and Middle Eastmain segments, exploration was focussed on metasedimentary rocks hosted gold mineralisation. Diamond exploration projects were largely concentrated in the granitoids and paragneisses that border the Upper Eastmain greenstone belt (Otish Mountains area).

In the Lower Eastmain area, **Virginia Gold Mines Inc.** continued definition drilling on the Roberto mineralized system on the Eleonore property (project 47, Figure 1B-1), located in the northeastern part of Opinaca Reservoir. The Eleonore property is centered on the Ell Lake diorite stock, a small intrusion located on the edge of a batholithic complex, along the boundary between the La Grande and Opinaca subprovinces. This high-grade gold system, now traced over a strike length of 1.9 km and to a vertical depth of 900 m, consists of a hydrothermal replacement zone and a quartz stockwork, hosted in wackes and siltstones. The high-grade replacement zone is pinkish and composed of quartz, microcline, and tourmaline with 5% disseminated arsenopyrite and pyrrhotite (Archer, 2005). The Roberto system, occurring in a deformed fold hinge, comprises three main zones, namely: Roberto (22.56 g/t Au over 15 m;

drillhole ELE-05-151B), Mid-Roberto (13.35 g/t Au over 10.8 m, and 11.11 g/t Au over 5.1 m; drillhole ELE-05-146), and Roberto Est (11.23 g/t Au over 10.8 m; drillhole ELE-05-150). These zones remain open at depth and along strike. Similar subsidiary zones parallel have also been discovered. This new geological setting has prompted many companies to acquire claims and under take exploration work over the past year in the Eastmain volcanic belt and adjacent areas.

Just south of Eleonore, **Eastmain Resources Inc.** and **Azimut Exploration Inc.** identified gold-arsenic soil geochemistry anomalies, thus defining a zone about 7 km long on the C-block of the Opinaca property (project 49, Figure 1B-1). Several soil samples yielded anomalous gold values, reaching 1.19 g/t Au. A few gold showings, with grades up to 2.99 g/t Au, were discovered in outcrop within these soil geochemistry anomaly zones.

Everton Resources Inc. and joint venture partner **Azimut Exploration Inc.** announced the discovery of a 1.7-km-long gold-bearing trend on the A-Block of the Opinaca property (project 51, Figure 1B-1), adjacent to the north of the Eleonore property held by **Virginia Gold Mines Inc.** Surface samples of strongly metamorphosed sedimentary rocks (grab and channel samples) yielded grades ranging from 0.1 to 29.07 g/t Au.

On the Opinaca property (project 46, Figure 1B-1), located southwest of Eleonore, **Beaufield Consolidated Resources Inc.** collected surface grab and channel samples and defined four gold-bearing zones over a distance of more than 4 km. Best results, ranging from 0.25 to 12 g/t Au, were obtained in sedimentary units (greywackes and conglomerates) in the Channel zone.

On the Cheechoo project (project 42, Figure 1B-1), **Golden Valley Mines Ltd** and **Sirios Resources Inc.** discovered gold-copper mineralization grading between 0.1 and 4.0 g/t Au and up to 1.73% Cu in grab samples. Four of the highest grades obtained came from boulders sampled on the Cheechoo A Block, and another from a boulder sampled on the Cheechoo B Block.

About 20 km southeast of the Eau Claire gold deposit (indicated resources of 1.03 Mt grading 9.46 g/t Au – 313,191 ounces of gold, and inferred resources of 3.05 Mt at 6.9 g/t Au – 679,464 ounces of gold; March 2005) on the Clearwater property (project 31, Figure 1B-1) held by **Eastmain Resources Inc.**, **Placer Dome Inc.** and **Azimut Exploration Inc.** uncovered four new outcropping gold showings on the Wabamisk property (project 33, Figure 1B-1). These showings, with grades ranging from 0.72 to 8.20 g/t Au in grab sample, were discovered as a result of reconnaissance traverses spaced 2 km apart, in gneissic metasedimentary rocks with minor pyrite mineralization.

The Eastmain volcano-sedimentary belt and surrounding areas, known for its gold, base metal and PGE potential, continues to garner attention from diamond explorationists. **Western Troy Capital Resources Inc.** drill-tested mineralized zones in two porphyry Cu-Mo (Au-Ag) deposits on the Windy-1 property (MacLeod Lake) (project 17, Figure 1B-1), namely the *Main Zone* (indicated resources of 23.7 Mt at 0.52% Cu, 0.08% Mo, 0.05 g/t Au, and 4 g/t Ag, and inferred resources of 3.8 Mt at 0.36% Cu, 0.026% Mo, 0.03 g/t Au, and 2 g/t Ag) and the *South Zone* (drillhole ML-05-82: 4.0 m grading 0.64% Cu, 0.096% Mo, 0.22 g/t Au, and 9 g/t Ag).

North of the Otish Mountains, **Ashton Mining of Canada Inc.** and **SOQUEM INC.** invested $12M in exploration and deposit appraisal work, namely to perform definition drilling on the Renard 2, 3, 4, 7, 8, 9, and 10 diamond-bearing kimberlite bodies, as well as on diamond-bearing kimberlite dykes of the Lynx system on the Foxtrot property (project 2, Figure 1B-1). In April 2005, a valuation of 459 carats of diamonds recovered from a 664-tonne bulk sample collected in 2004 from Renard 2, 3, 4, and 65, yielded a modeled value of US$88 per carat. During the summer 2005, prospecting, ground geophysical surveys and indicator mineral sampling led to the discovery of an important diamond-bearing kimberlite dyke called Hibou, as well as a number of diamond-bearing kimberlitic boulders at four different locations between the Renard cluster and the Lynx dyke system. The Hibou dyke, trending WNW and dipping 10 degrees toward the NNE, is about 2 m thick and extends for at least 850 m along strike. In November 2005, the joint venture announced that the Renard 2, 3, 4, and 9 bodies could potentially host between 18.6 and 22.0 million carats of diamonds within an aggregate 23.2 to 27.5 Mt of kimberlitic material. These estimates are based on drilling results to date and on the diamond content of samples analyzed thus far from the four bodies. In December 2005, a 56.5-kg sample of drillcore collected from a kimberlite dyke in the North Anomaly zone (5 km north of the Renard cluster) yielded 662 diamonds larger than 0.1 mm, using a square mesh screen. At least half of these stones are interpreted as fragments derived from the disaggregation of a diamond greater than 2 mm in size. Based on current drill data, this new diamond-bearing dyke is about 1.2 m thick on average and extends for at least 225 m along strike.

In the same area, southwest of the Renard cluster, **Majescor Resources Inc.** intersected kimberlitic material over thicknesses of 0.5 to 1.3 m, in shallow drillholes on the Portage property (project 3, Figure 1B-1). This new subhorizontal kimberlite dyke, called *Remick*, is located at the head of a glacial dispersal train where diamond-bearing kimberlitic boulders were discovered in August 2004.

South of the Otish Mountains, **Dios Exploration Inc.** and **Vaaldiam Resources Ltd** extracted approximately 300 kg of kimberlitic material from the HOTISH-1 kimberlite dyke (project 14, Figure 1B-1).

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La Grande Area

The La Grande area comprises three major Archean assemblages, Proterozoic dykes, and a series of grabens infilled with siliciclastic sediments of the Paleoproterozoic Sakami Formation. Archean assemblages include the Bienville plutonic Subprovince to the northwest, the La Grande volcano-plutonic Subprovince in the centre, and the metasedimentary and plutonic Opinaca Subprovince to the southeast.

Part of the La Grande Subprovince, the La Grande volcano-sedimentary belt (LGVB) hosts the vast majority of known mineral occurrences. Parallel to the Wemindji-Caniapiscau structural corridor, the LGVB is mainly composed of mafic to felsic volcanic rocks interstratified with metasediments and oxide-facies or magnetite iron formations. Komatiitic flows and ultramafic intrusions are also present and locally host Ni-Cu±PGE and Cr occurrences. A total of 10 exploration projects were reported in the La Grande area in 2005. Exploration projects are clustered in two areas: the western and eastern La Grande segments.

In the eastern part of the La Grande Subprovince on the Aquilon property, **Sirios Resources Inc.** and **Golden Tag Resources Ltd** conducted a second-phase drilling program on the *Red Toad* zone (project 61, Figure 1B-1). Drill results indicate the Red Toad zone extends for at least 130 m along strike and to a vertical depth of 75 m. The zone remains open at depth and along strike. Drillhole AQ-05-01, collared about 290 m along the southwestern extension of the Red Toad zone, intersected 0.5 m grading 8.56 g/t Au. The property hosts several high-grade gold showings to the southwest of the Red Toad zone, with grades ranging up to 1477 g/t Au in grab samples.

Opportunities for Exploration

Following the exceptional gold results obtained on the Eleonore property (Roberto mineralized system) by **Virginia Gold Mines Inc.** in 2005, the Eastmain volcano-sedimentary belt in the central part of the James Bay region has become one of the most promising target areas for mineral exploration in Québec. Geologically, this new gold setting is dominated by a vast batholithic complex, with greenstone and sedimentary assemblages of the La Grande geological Subprovince and paragneisses of the Opinaca geological Subprovince. As illustrated by the Roberto system, fold hinges and transverse or longitudinal deformation zones affecting these rocks are favourable sites for gold remobilization, hydrothermal replacement and local enrichment. Consequently, most areas lying along the contact between two lithostratigraphic domains (sedimentary/volcanic) and/or along the boundary between the La Grande and Opinaca subprovinces are highly prospective for the discovery of high-grade gold occurrences in the James Bay region.

Furthermore, all the greenstone belts within the James Bay region offer a strong potential for the discovery of volcanogenic massive sulphide (VMS) horizons. A recent potential assessment for VMS deposits in the Abitibi (Lamothe *et al.*, 2005) defined several areas of interest in the Frotet-Evans volcano-sedimentary belt (NTS 32K and 32J). This belt, which has seen little exploration, also offers good potential for rare metal deposits (Y-Zr-Nb-Ta-Be-Li-REE) (Boily and Gosselin, 2004).

Finally, the recent rise in uranium prices has rekindled interest for this commodity in the James Bay region. Thus, Paleoproterozoic sedimentary sequences in the Otish basin, the Rivière Rupert area, and the Sakami Formation in the La Grande area constitute prime target areas for uranium exploration.

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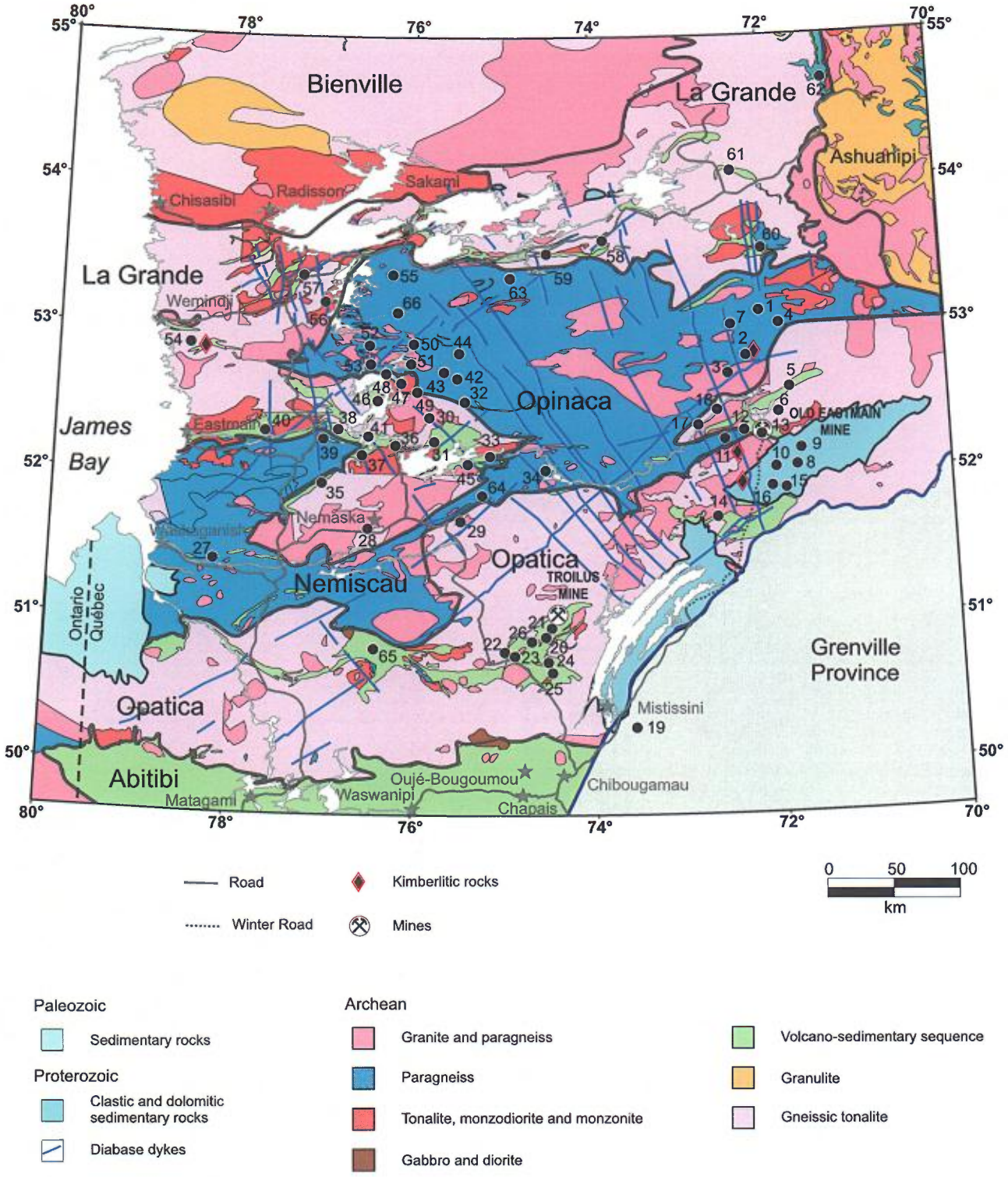

Figure 1B-1. Exploration projects in the James Bay area for 2005.

TABLE 1B-1 - Exploration projects in the James Bay area in 2005 (see figure 1B-1).

Nos.	NTS	COMPANIES / PROSPECTORS	PROJECTS	SUBSTANCES	WORKS [1]
1	23 E/04	Dianor Resources Inc. / Alexis Minerals Corporation	Queotish	Diamond	Gs(sl), GpMa(G)
2	23 D, 23 E, 33 A, 33 H	Ashton Mining of Canada Inc. / SOQUEM INC.	Foxtrot	Diamond	D (138:26 436), G, Gs(t), GpEm (A), GpMa(A), GpMa(G), Pr, T
3	33 A/07, 08, 09, 10, 15, 16, 33 H/01, 02	Majescor Resources Inc. / Forest Gate Resources Inc.	Portage	Diamond	D (9:633), Gs(t), GpEm(G), GpMa(G)
4	23 E, 33 A	Dianor Resources Inc.	Otish	Diamond	Gs(sl), GpMa(G)
5	23 D/12	Société minière Alta inc.	Otish-Léran	Cu-Zn-Au-Ag-diamond	Gs(h), Gs(sl), GpMa(G), Pg, S
6	33 A/02, 03, 08, 10, 11, 14, 15, 23 D/13	Dios Exploration Inc.	33 Carats Extension	Diamond	Gs(t), Pg
7	33 A/08, 09, 10, 23 D/12, 33 H/01, 02	Dios Exploration Inc.	33 Carats	Diamond	D (2:248), Gs(t), Gp, Pg
8	23 D/04	ISX Resources Inc.	Lac Lappare	Diamond	Gs(t)
9	23 D/03, 04, 05, 06	Majescor Resources Inc. / Dunsmuir Ventures Ltd	Lac Lappare	Diamond	GpMa(G)
10	23 D	Ashton Mining of Canada Inc. / SOQUEM INC.	Monts Otish	Diamond	D (7:664), Gs(t), GpMa(G)
11	33 A/07, 10, 15	Melkior Resources Inc.	Monts Otish	Diamond	Pg
12	33 A/07, 08	Eastmain Resources Inc. / Ruby Hill Exploration	Ruby Hill	Cu-Au-Ag	GpEm(A), GpMa(A)
13	33 A/08	Campbell Resources Inc. / Eastmain Resources Inc.	Eastmain	Cu-Au-Ag	GpEm(A), GpMa(A)
14	32P/10, 15, 16	Dios Exploration Inc. / Vaaldiam Resources Ltd	Hotish	Diamond	Gs(t), Pg, S, T
15	22 M/13, 32 P/16	Cameco Corporation	Otish South	Uranium	Gs, Gp(A), GpGr(G), GpRa(G), Pr, S
16	22 M/13	Uranor Inc.	Otish-A	Uranium	G, Gs(r), Gc(s), GpRa(G)
17	33 A/02, 03, 06, 07	Western Troy Capital Resources Inc.	Windy 1 (Macleod Lake)	Cu-Au-Ag-Mo	D (18:1983), GpEl(G)
18	33 A/02, 07	Western Troy Capital Resources Inc. / Match Capital Resources Inc.	Eastmain River	Cu-Au-Ag-Mo	D (6:1195), GpEl(G)
19	32 G/16, 32 J/01, 32 I/04, 05	Dios Exploration Inc.	Chibouki	Diamond	Gs(t), Gp, Pg
20	32 J/15	Treegenic Gold Corporation / J. Frigon / G. Robert	Roméo Boisvert	Cu-Zn-Au-Ag-Co	Pr, S
21	32 O/01, 02, 32 J/15, 16	Inmet Mining Corporation	Troilus North	Cu-Au-Ag	Rcd (33:1650), TE
22	32 J/10	Globestar Mining Corporation	Moblan	Lithium -Tantalum	G, Met, S
23	32 J/10, 15, 16	Beaufield Consolidated Resources Inc. / Falconbridge Ltd	Troilus	Cu-Zn-Au-Ag	D (13:2663), G, GpEm(B), Pr, S, T
24	32 J /10, 15, 16	Vior Mining Exploration Company Inc. / SOQUEM INC.	Domergue (1149)	Cu-Zn-Ag	D (2:513)
25	32 J/09, 10	Explorations Minières du Nord Ltée / SOQUEM INC.	Clairy (1171)	Cu-Zn	D (8:1958)

TABLE 1B-1 - Exploration projects in the James Bay area in 2005 (see figure 1B-1).

Nos.	NTS	COMPANIES / PROSPECTORS	PROJECTS	SUBSTANCES	WORKS [1]
26	32 J/15, 16	SOQUEM INC.	Diléo-Nord (1346)	Au-Cu	D (5:992), G, Pr, S, T
27	32 M/08	De Beers Canada Inc.	Mirabelli	Diamond	Rcd (25:689), GpMa
28	32 N/09	Washeshkun Ltd	Nemaska km 306	Au	Pr, S
29	32 O/10, 11, 12, 14, 15	Cash Minerals Inc.	Rupert River	Uranium	GpEm(A), GpMa(A), GpRa
30	33 B/05	Inco Ltd	Lac Caron	Ni	D (3:351), G, GpEm(G), Pr, S
31	33 B/04	Eastmain Resources Inc.	Clearwater	Au	GpEm(A), Pg, S, TE
32	33 B/05, 06, 12	Sirios Resources Inc.	Kukames	Au	Gs(l), Pg
33	33 B	Placer Dome Inc. / Azimut Exploration Inc.	Wabamisk	Au	G, Gs(l), Gs(t), GpMa(A), Pr, S
34	33 B, 32 O	Placer Dome Inc.	Opinaca 1 & 2	Au	Gs(l)
35	33 C/03, 32 N/14, 15	Sirios Resources Inc. / Dios Exploration Inc.	Pontax	Au-diamond	Gs(s), Gs(t)
36	33 C/01	D'Arianne Resources Inc.	Opinaca	Au	G, Gs, S, T
37	33 C/01, 02	SOQUEM INC. / Inco Ltd	Lac H	Cu-Au	GpRa, GpMa, Pg
38	33 C/02	Cambior Inc.	Anatacau	Au-Cu	Gs(l), Gs(t), GpMa(A), GpEm(A), Pr
39	33 C/03	J. Frigon	Baie James (km 381)	Lithium	S, T
40	33 C/04	Megastar Development Corporation	Kauputau	Au	Gs(h), Pr, S
41	33 C/01, 08	Eastmain Resources Inc.	Réservoir	Cu-Au-Ag	GpEm(A)
42	33 C/09, 33 B/11, 12, 14	Golden Valley Mines Ltd / Sirios Resources Inc.	Cheechoo	Au-Ag	G, Gs(l), GpEm(A), GpMa(A), Pr, S
43	33 B/11, 12, 13	Golden Valley Mines Ltd / Sirios Resources Inc.	Sharks	Au-Ag	G, Gs(l), GpEm(A), GpMa(A), Pr, S
44	33 B/12, 13	Sirios Resources Inc.	Opinaca Nord	Au	Gs(l)
45	32 O/13	Cambior Inc. / Azimut Exploration Inc.	Eastmain Ouest	Au-Cu	Gs(l), Gs(t), GpMa(A), GpEm(A), Pr
46	33 C/09	Beaufield Consolidated Resources Inc.	Opinaca	Au	G, Gs(sl), Gp(S), Pr, S
47	33 C/09, 33 B/12	Virginia Gold Mines Inc.	Éléonore	Au	D (200: 71 364), G, Gs(sl), GpEl(G), GpMa(A), Pr, S
48	33 C/09	Vantex Resources Ltd	ANA	Au	Gs(h)
49	33 C/09, 33 B/12	Eastmain Resources Inc. / Azimut Exploration Inc.	Opinaca "Block C"	Au	G, Gs(sl), GpEm(A), Pg, S
50	33 C/09, 16, 33 B/12	Everton Resources Inc.	Wildcat	Au	Gc(l), Pr, S
51	33 C/16, 33 B/12, 13	Everton Resources Inc. / Azimut Exploration Inc.	Opinaca "Bloc A"	Au	G, Gs(l), Gs(sl), Gc(t), Pr, S
52	33 C/16	Eastmain Resources Inc.	Dyna	Au	G, Gs(sl), Pr, S
53	33 C/09, 16	Eastmain Resources Inc. / Azimut Exploration Inc.	Opinaca "Block D"	Au	G, Gs(sl), GpEm(A), Pg, S
54	33 D, 33 E	Metalex Ventures Ltd / Wemindji Exploration Inc. / Dianor Resources Inc.	Baie James	Cu-Zn-Au-Ag-uranium-diamond	Gs(sl), Gs(t), Pg

TABLE 1B-1 - Exploration projects in the James Bay area in 2005 (see figure 1B-1).

Nos.	NTS	COMPANIES / PROSPECTORS	PROJECTS	SUBSTANCES	WORKS [1]
55	33 F	Placer Dome Inc.	Sakami	Au	Gs(l)
56	33 F/03	Megatem Exploration	Lac Kaychikwapichu	Diamond-PGE-Cu-Zn	Gp, Pr, S
57	33 F/06	Pro-Or Mining Resources Inc.	Ménarik	Cr-Pd-Pt	Met
58	33 G/09, 33 H/12	Virginia Gold Mines Inc.	Corvet Ouest / Pelicie	Cu-Zn-Au-Ag	Gs(sl), GpEm(A), Pg
59	33 G/07, 08, 33 H/5	Virginia Gold Mines Inc. / Placer Dome Inc.	Corvet Est	Au	D (8:1485), G, GpEl(G), GpMa(A), Pr, S
60	33 H, 23 E	Virginia Gold Mines Inc.	Noella	Au	D (7:1290), GpEl(G), GpEm(G),
61	33 I /01, 02	Golden Tag Resources Ltd / Sirios Resources Inc.	Aquilon	Au	D (7:987)
62	23 L/11, 12, 13, 14, 23 M/03, 04	Virginia Gold Mines Inc.	Lac Coulon	Cu-Zn-Au-Ag-Pb	D (9:3359), G, GpEm(B), S, T
63	33C, 33G, 32 P	Virginia Gold Mines Inc.	Baie James	Cu-Zn-Au-Ag	Pg
64	32 O/11, 12	Cambior Inc.	Lac de L'Ancre	Au	Gs(l), Gs(t), Pr
65	32 K/15, 16	Cambior Inc.	Lac Storm	Au-Cu-Zn	Gs(t), Pr
66	33 F/01	Everton Resources Inc. / Cambior Inc.	Star Lake	Au	Gs(l), Pr

1 = See abbreviation list in appendix II.

1B

1C

Southern Superior Province (Abitibi and Pontiac Subprovinces)

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James Moorhead
Suzanne Côté

Introduction

The Abitibi and Pontiac subprovinces form the southern 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 oriented roughly E-W (Figure 1C-1), dated between 2.75 and 2.67 Ga. The Abitibi belt is transected by several major reverse or normal faults oriented E-W to NW-SE, as well as by sinistral NE-trending and dextral SE-trending faults that dissect volcano-sedimentary domains into lozenge-shaped segments cored by intrusive rocks.

The Pontiac Subprovince is separated from the Abitibi Subprovince by the Cadillac-Larder Lake Break, a structure that extends east to west over a distance of more than 100 km in Québec and Ontario. 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 locally felsic assemblages in the southwestern part of the Pontiac. A few thin bands of mafic to ultramafic volcanic rocks are also present in the northern part of the subprovince.

The Abitibi Subprovince is world-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, and garnet) were also mined in the Pontiac Subprovince. Exploration and mining have made this territory one of the main mining regions in Québec for close to a century.

In 2005, we compiled 177 mineral exploration projects in the Abitibi and Pontiac subprovinces, compared to 198 in 2004. This represents an 11% decrease. The number of gold exploration projects stood at 116 (Table 1C-1), a slight drop of 11% compared to 2004. The number of exploration projects targeting polymetallic deposits or diamonds stood at 61 in 2005 (Table 1C-2), down 9% relative to the 67 projects reported in 2004. Figures 1C-1 to 1C-4 show the location of all exploration projects in the Abitibi and Pontiac subprovinces.

Casa Berardi – Matagami Area

In this area, located in the northwesternmost part of the Abitibi Subprovince, we compiled 22 exploration projects in 2005, namely 9 gold projects and 13 polymetallic projects (Figures 1C-1 and 1C-2).

The Casa Berardi project (project 31) held by **Aurizon Mines Ltd** is located 130 km west-southwest of Matagami, in sedimentary rocks of the Taïbi Group. The former Casa Berardi East and West mines are both located near the Casa Berardi fault. Gold-bearing zones are generally associated with fine-grained pyrite and arsenopyrite in quartz veins, quartz-carbonate stringers, and sulphide-rich schists. In 2005, **Aurizon Mines Ltd** performed underground drilling and mine development work including construction of surface installations, sinking of a production shaft, and excavation of a service ramp and headings. Total probable reserves were estimated, as of September 2005, at 4.908 Mt grading 7.69 g/t Au. Commercial production is slated to begin at the end of 2006.

Société d'exploration minière Vior Inc. carried out a drilling campaign on its Douay and Douay West properties (project 51), located 60 km south of Matagami. On the Douay West deposit, several drillholes intersected near-surface gold zones, among which a 47.1-m interval at 3.0 g/t Au in drillhole D-112. Gold-bearing zones are associated with disseminated sulphides in strongly albitized, silicified, and carbonatized mafic to ultramafic lavas, sediments, gabbros, and alkaline dykes.

On its property enclosing the former Estrades mine (project P13), **Woodruff Capital Management Inc.** encountered several sections with interesting copper, zinc, silver, and gold grades. Drillhole EME-02 intersected 3.85 m grading 1.30% Cu, 0.23% Zn, 0.33 g/t Au, and 9.8 g/t Ag. **Cancor Mines Inc.** reported good results from a drill campaign on the Bonfortel property (project P39). Drillhole BON-05-01 yielded an assay of 2.36% Zn over 1.42 m. On the Kistabiche project (project P40), **Cancor Mines Inc.** and **SOQUEM INC.** completed a 10-hole drill program. A 2.70-m section in drillhole KIST-05-04 graded 0.25% Zn and 7.5 g/t Ag. On the Du Dôme-Matagami property (project P7), partners **Metco Resources Inc.** and **SOQUEM INC.** reported grades of 0.47% Zn and 0.03% Cu over 10.2 m in drillhole 1288-05-14.

Lebel-sur-Quévillon – Desmaraisville Area

In 2005, the number of exploration projects recorded in this area, located in the east-central part of the Abitibi Subprovince, stood at 20, including 12 gold projects and 8 Cu-Zn or diamond projects (Figures 1C-1 and 1C-2). One producer, the Sleeping Giant (Au-Ag) mine, was in operation in this area.

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Property of **Cambior Inc.**, the Sleeping Giant mine (project 33) is located 70 km west of Lebel-sur-Quévillon. The lode gold deposit is characterized by high gold grades of up to 11 g/t Au. In December 2003, the shaft was deepened by 200 m to reach a total depth of 1,006 m, providing access to new gold zones 6, 7, 8, and 18. In 2005, development work to access these new ore zones was completed. Near Desmaraisville, **Halo Resources Ltd** and **Metanor Resources Inc.** completed an important underground drilling program at the former Bachelor gold mine (project 80), in order to define 841,591 tonnes of measured and indicated resources grading 7.79 g/t Au in the A, B, and Main zones.

About 120 km east of Lebel-sur-Quévillon, in the central part of the Urban-Barry belt, **Noront Resources Ltd** stripped an area of 800 m by 800 m on the Windfall Lake property (project 112) to expose a gold occurrence consisting of quartz-pyrite-ankerite-tourmaline veins. Drillholes intersected the gently-dipping Zone 27 composed of quartz-tourmaline-sulphide veins, which yielded high gold grades such as 23.4 g/t Au over 1.55 m in drillhole NOT-05-82, within a lower-grade halo. On the Windfall property (project 111) adjacent to the north, **Murgor Resources Inc.** and **Freewest Resources Canada Inc.** discovered, in drillholes, two gold-bearing shear zones, zone F-17, composed of silicified lenses and quartz-tourmaline-pyrite veins, and zone F-11, consisting of pyrite-magnetite-rich pockets and quartz veins. Best results include 15.97 g/t Au over 7.6 m in drillhole WIN-05-79 in zone F-17, and 11.91 g/t Au over 17.0 m in zone F-11 in drillhole WIN-05-30.

Metco Resources Inc. completed a drill program on the Mountain A (project P37) and Mountain B (project P38) properties located east of Lebel-sur-Quévillon. A drillhole targeting the north zone on the Mountain B property intersected 0.7 m grading 1.13% Cu.

Chibougamau Area

In the Chibougamau mining camp, which forms the northeastern tip of the Abitibi Subprovince, 26 exploration projects were tabulated in 2005, including 15 gold projects and 11 base metal projects (Figures 1C-1 and 1C-2). Two producers, the Joe Mann (Au-Ag) mine and the Copper Rand (Cu-Au-Ag) mine, were in operation in the Chibougamau area in 2005.

Mining operations began in March 2005 at the Copper Rand mine (project 101) and continued at the Joe Mann mine (project 75). On the Meston property (project 98), adjacent to the Joe Mann mine, **Campbell Resources Inc.** completed a drill program targeting gold-bearing structures.

In the Chibougamau area, **Woodruff Capital Management Inc.** tested a 14-km segment of the host sequence of the former Lemoine mine (project P24). Nine drillholes spaced along this prospective assemblage were completed and yielded very promising results, among which drillhole LEM-47 which encountered 3 m grading 3.20% Zn and 0.31% Cu. **Campbell Resources Inc.** targeted the depth extension of ore zones at the Corner Bay deposit (project P23). Drillhole 05-92 intersected an impressive 16.10 m grading 9.27% Cu. Resource calculations were updated and the new estimate now stands at 1.3 Mt of measured and indicated resources grading 4.47% Cu, plus 869,000 tonnes of inferred resources grading 5.96% Cu, using a cut-off grade of 2% Cu. In the same area, **Novawest Resources Inc.** completed an important exploration campaign on the Chibougamau project (project P49), which included prospecting, geophysical surveys, surface stripping, and drilling on many showings. Drillhole NWM5-4 intersected 3.0 m grading 1.82% Cu, 19.8 g/t Ag, and 0.12 g/t Au.

On the Montviel property (project P36), located 45 km northwest of Miquelon, **NioGold Mining Corp.** sampled the Montviel alkaline Complex to assess its rare earth element potential. Sample no. 1039 yielded an assay of 1240 ppm P, 1540 ppm Ce, 890 ppm La, 417 ppm Nb, 536 ppm Nd, and 267 ppm Zr.

Normétal – La Sarre – Amos Area

Our compilation indicates that 12 exploration projects, including 7 gold projects and 5 polymetallic projects, are located in the west-central part of the Abitibi Subprovince (Figures 1C-1 and 1C-2).

On the Despinassy project (project 48), located near the village of Despinassy 36 km northeast of Barraute, **Alto Ventures Ltd** and **Commander Resources Ltd** drill-tested the DAC gold deposit, which consists of four subparallel ore zones comprising quartz-calcite-albite-pyrite-gold veins hosted in deformed and biotite-altered mafic volcanic rocks. Mineralized intercepts yielded grades such as 4.53 g/t Au over 4.0 m for zone 2 in drillhole DES05-79.

Woodruff Capital Management Inc. conducted drill campaigns on its Landrienne (project P21) and Castagnier (project P18) properties.

Rouyn-Noranda – Cadillac Area

The number of gold exploration projects compiled in the Rouyn-Noranda – Cadillac area stood at 29, whereas 10 projects targeting polymetallic deposits were reported (Figure 1C-3). Four mines were in operation in this area in 2005: the Mouska and Doyon (Au-Ag) gold mines, the LaRonde (Au-Ag-Zn-Cu) polymetallic mine, and the Bouchard-Hébert (Zn-Cu-Ag) mine. The latter, held by **Breakwater Resources Ltd** and located 20 km northeast of Rouyn-Noranda, ceased mining operations on February 20, 2005.

In the Cadillac area, mining operations resumed at the Mouska mine, held by **Cambior Inc.** (project 21), in October 2004 after the internal shaft was deepened by 210 m to provide access to new ore zones and add three years to the mine life. At the Doyon mine (project 20), also held by **Cambior Inc.**, exploration drilling and development work was carried out. A 2.6-km-long exploration drift going east from level 14 at the Doyon mine is underway to reach the Westwood project (project 18). Exploration drillholes were completed from this drift in 2005. Eastward, on the contiguous Ellison and Bousquet properties (project 16), underground drilling by **Agnico-Eagle Mines Ltd** intersected gold mineralization within a large alteration zone and reported assays of 24.34 g/t Au over 2.8 m in drillhole D04-2803. A work program including sinking a shaft to 830 m depth, underground development, drilling, and metallurgical testing was launched by **Agnico-Eagle Mines Ltd** on its Lapa property (project 28) located 16 km west of Malartic. Shaft sinking commenced in March 2005. The main ore zone, known as the Contact Zone, lies along the interface between sheared and altered mafic and ultramafic lavas of the Piché Group and sedimentary rocks of the Cadillac Group, in the Cadillac Tectonic Zone. It consists of disseminated sulphides and quartz-sulphide veins hosted in biotite-sericite rich volcanic rocks. Probable reserves are estimated at 4.08 Mt at a grade of 8.91 g/t Au. West of Lapa, on the Wood-Pandora property (project 25), **Globex Mining Enterprises Inc.** and **Queenston Mining Inc.** intersected a talc-chlorite schist with visible gold, which assayed 8.51 g/t Au over 28 m in drillhole W05-09, and a unit of sheared and carbonatized argillite with minor pyrite and arsenopyrite, which graded 68.19 g/t Au over 1.5 m in drillhole W05-09. **Radisson Mining Resources Inc.** drill-tested its O'Brien and Kewagama properties (project 29), located 1 km north of Cadillac, to explore the eastward and depth extensions of quartz-native gold veins in the 36E zone, hosted in rocks of the Piché Group within the Cadillac Tectonic Zone. In drillhole KW05-11, a 10.50-m interval graded 1.3 g/t Au below existing infrastructure at the former Kewagama gold mine.

About 20 km east of Rouyn-Noranda on the Heva property (project 73), **Stellar Pacific Ventures Inc.** and **Vantex Resources Ltd** completed drillholes which intersected the A vein in the footwall of the Cadillac Tectonic Zone, in the vicinity of the former Heva Gold mine. Gold is associated with quartz stringers in metasedimentary rocks or talc-chlorite schists. Among the best intervals, drillhole H2005-02 intersected 9.25 m grading 2.28 g/t Au. On the Rouyn property (project 5), located 3 km south of Rouyn-Noranda, **Yorbeau Resources Inc.** drill-tested the Cinderella block straddling the Cadillac-Larder Lake Break. Drillhole 390 intersected a sulphide-rich gold-bearing zone grading 2.54 g/t Au over 10.7 m. On the Flavrian and COOF properties (project 59), located along the margin of the Flavrian pluton 15 km west of Rouyn-Noranda, **Alexis Minerals Corp.** and **Falconbridge Ltd** completed drillholes which intersected quartz-pyrite veins. Best results include 1.52 g/t Au over 9.1 m in drillhole FV-05-08 and 7.33 g/t Au over 0.6 m in drillhole FV-05-10. On the Lac Fortune West property (project 43) located 25 km west of Rouyn-Noranda, **Search-Gold Resources Inc.** drilled boreholes which encountered a near-surface gold-bearing zone in silicified and sericitized rocks cut by quartz-tourmaline-carbonate-pyrite veins. Best results include 2.3 m grading 7.0 g/t Au in drillhole LF-04-04. On the Dasserat-Galloway property (project 44), located 30 km west of Rouyn-Noranda near the former Galloway shaft, **Pro-Spect-Or Resources Inc.** carried out surface stripping and uncovered a new gold-bearing structure. It consists of a fault zone strongly altered to carbonate and silica and cut by quartz-carbonate veins. Channel samples yielded assays including 8.0 g/t Au over 1.0 m. On the Russian Kid property (project 42), located 36 km west of Rouyn-Noranda, **Mirabel Resources Inc.** and **Globex Mining Enterprises Inc.** proceeded with dewatering of the access ramp and rehabilitation of underground infrastructure. A drilling program is planned for 2006.

On the Fayolle property (project 1), located 35 km northeast of Rouyn-Noranda, **Typhoon Exploration Inc.** drillholes intersected ankeritized, hematized, and pyritized granodiorite dykes. Drillhole FA-05-15 encountered a high-grade zone near surface in Zone III, with an intercept grading 43.5 g/t Au over 25.1 m. **Normabec Resources Ltd, GéoNova Explorations Inc.,** and **SOQUEM INC.** completed a drilling program on the Pitt Gold property (project 58) located 35 km north of Rouyn-Noranda, near the Destor-Porcupine Fault. Several mineralized intercepts were reported, including a 1.5-m section grading 6.41 g/t Au in drillhole PG2005-03. Gold is typically associated with silicified zones containing very fine-grained pyrite and quartz stringers.

North of Rouyn-Noranda, joint venture partners **Falconbridge Ltd** and **Alexis Minerals Corp.** reported numerous impressive massive and stringer sulphide intercepts on the West Ansil project (project P52), including 3.57% Cu, 0.25% Zn, 0.52 g/t Au, and 7.72 g/t Ag over 52.70 m in drillhole AN-05-04. This discovery is located just 2 km southwest of the former Ansil mine. Additional drillholes are planned in early 2006 and the partners are evaluating the economic parameters of the deposit. **Agnico-Eagle Mines Ltd** continued exploration at depth and to the west in Zone 20 North on the LaRonde II project (project P6), from the exploration drift on level 215. The company also completed a feasibility study regarding development of the orebody. An internal shaft was chosen as the most cost-efficient option. The study is based on a production rate of 5,000 to 6,000 tonnes per day, with potential gold production of 300,000 ounces per year.

Malartic – Senneterre – Val-d'Or Area

The number of projects reported in the Malartic–Senneterre–Val-d'Or area, which covers the southeastern part of the Abitibi Subprovince, stands at 48, including 39 gold projects and 9 projects targeting Cu-Zn occurrences (Figures 1C-1, 1C-2, and 1C-4). In

this area in 2005, the Beaufor (Au-Ag) and Sigma (Au) mines were in operation, whereas the Louvicourt (Cu-Zn-Au-Ag) mine, property of **Aur Resources Inc.**, **Novicourt Inc.**, and **Teck Cominco Ltd** and located 25 km east of Val-d'Or, ceased operations on July 19, 2005.

In Malartic, **Osisko Exploration Ltd** conducted a drill program on the F zone at the former Canadian Malartic gold mine (project 64), in order to define near-surface gold resources to be mined by open pit. The gold-bearing F zone is characterized by the presence of disseminated pyrite in granodiorites with silica and potassic alteration and in surrounding metasedimentary rocks. Best results include 1.39 g/t Au over 142 m in drillhole CM05-673. On the East Amphi property (project 84) located 3 km west of Malartic, **Richmont Mines Inc.** continued development work and drilling in the A and B zones. A preliminary bulk sample of 6,500 tonnes of development ore was extracted and processed at the Camflo mill. The recovery grade was 3.42 g/t Au. A second bulk sample comprising 15,800 tonnes of ore from the B2 zone and 10,100 tonnes of development ore was extracted in the Fall of 2005. On the Camflo West property (project 85), located 5 km northeast of Malartic, **NioGold Mining Corp.** conducted a prospecting campaign which led to the discovery of a new deformation zone characterized by chlorite and talc-chlorite schists injected with porphyry dykes and quartz veins. Grab samples yielded assays reaching 2.62 g/t Au.

On its Midway project (project 56), located 16 km west of Val-d'Or along the Cadillac Tectonic Zone, **Northern Star Mining Corp.** proceeded with the raising of a new head frame and dewatering of the 823-m shaft at the former Malartic Goldfields mine, which produced more than 2 million ounces of gold between 1939 and 1960. A surface and underground drilling program is planned for 2006. Since 2003, surface drillholes have defined at least ten gold-bearing zones in pyrite-rich mafic lenses. On the Vassan property (project 114), located 8 km northwest of Val-d'Or, **Stellar Pacific Ventures Inc.** drill-tested the pyrrhotite-pyrite-chalcopyrite-rich Hamelin zone. Mineralized intercepts include 1.1 m grading 24.50 g/t Au in drillhole V2005-04. At the Kiena mine complex (project 51), located 9 km west of Val-d'Or, **Wesdome Gold Mines Inc.** continued its drilling program as well as development work in two exploration drifts. The first drift at the Kiena mine trends southeast from level 33 (330 m below surface) and is to provide access to the Shawkey and Martin zones. The latter contains at least two sets of parallel veins, which yielded a drill intercept of 5.5 m grading 3.26 g/t Au (drillhole 3845). The second drift, going north from level 52 (520 m below surface), has already reached the VC and North zones, and is heading towards the 388 zone and the Wesdome property, located further north. The VC zone consists of three lenses of silicified and albitized breccia hosted in basalt flows. Drill intercepts include 9.8 g/t Au over 8.08 m (true thickness) in lens VC3 (drillhole U-3769). The 388 zone contains gold-bearing quartz veins in albitized basalts near the contact with a granodiorite-diorite sill. Drill intercepts include 6.04 g/t Au over 7.0 m (true thickness) in drillhole 3836.

In 2004-2005 on the Goldex property (project 55), located in the western part of the city of Val-d'Or, **Agnico-Eagle Mines Ltd** conducted an exploration and development program to increase the level of confidence in the probable reserve estimate, which currently stands at 20.09 Mt at a grade of 2.4 g/t Au. Based on the positive results of this program, **Agnico-Eagle Mines Ltd** announced in July 2005 the start-up of construction for this new mine, slated to begin production in 2008. The Goldex Extension ore deposit consists of a stockwork of quartz-tourmaline-pyrite veins in albite-pyrite-altered wall rocks, hosted in a quartz diorite sill locally altered to sericite and chlorite. In 2004, **Century Mining Corp.** acquired the Sigma-Lamaque mining complex (project 10) from McWatters Mining Inc. Operations at the mine had been suspended in October 2003. A reverse-circulation drilling program totalling 12,000 m, designed to upgrade gold resources in the open pit, was completed in February 2005. Based on the results, commercial production commenced in June. On the Lamaque property (project 11), adjacent to the south of the open pit, **Century Mining Corp.** encountered near surface gold-bearing intervals, in drillholes testing the West Plug and the extension of vein #1 in the Main Plug.

On the Aurbel property (project 9), located 10 km east of Val-d'Or, **Alexis Minerals Corp.** announced that inferred mineral resources at the Lac Herbin deposit were estimated at 1,072,681 tonnes grading 7.26 g/t Au. Seven mineralized zones consisting of gold-bearing quartz-pyrite veins are hosted in shear zones cross-cutting the Bourlamaque Batholith. Excavation of an exploration ramp began in September 2005. An underground definition drilling program is planned for early 2006. At the Beaufor mine (project 93), located 19 km east of Val-d'Or, **Richmont Mines Inc.** carried out development work as well as definition and exploration drilling. Ramp development was undertaken in order to access the depth extension of Zone C. Gold ore zones are associated with quartz-pyrite veins cross-cutting the Bourlamaque Batholith.

From December 2004 to July 2005 on the Croinor property (project 94), located 70 km east of Val-d'Or, **South-Malartic Exploration Inc.** extracted a 24,363-tonne sample of gold ore from the West Pit, from which 3,834 ounces of gold were recovered at the Camflo mill in Malartic, for a recovery grade of 5.00 g/t Au. Gold ore zones consist of quartz veins and their altered pyrite-rich wall rocks, hosted in a diorite sill. Measured and indicated resources are estimated at 1.43 Mt grading 6.31 g/t Au, using a cut-off grade of 2.0 g/t Au. On the Jolin property (project 30), located 16 km west of Senneterre, **Abitex Resources Inc.** drill-tested the northward extension of the Main Vein and reported several gold-bearing intervals, such as 1.2 m grading 5.65 g/t Au in drillhole J-05-03. On the Courville

property (project 40), located 15 km west of Senneterre, **Pershimco Resources Inc.** carried out surface stripping and drilling on the Thibodeau intrusive, which consists of sericitized leucotonalite with disseminated pyrite cut by a stockwork of anastomosing subhorizontal quartz-sulphide veins. A 12,537-tonne bulk sample was excavated from the Thibodeau intrusive and shipped to the Camflo mill near Malartic. A total of 786 ounces of gold were recovered, indicating a recovery grade of 1.95 g/t Au. Shallow drillholes testing Zone 1 in the intrusive intersected low-grade mineralization over large widths, such as 0.86 g/t Au over 64.4 m in drillhole PRO-05-27.

On the Louvex project (project P53) east of Val-d'Or, located just 1 km south-west of the former Louvicourt mine, **Alexis Minerals Corp.** in partnership with **Novicourt Inc.** intersected 800 m of chlorite-sericite alteration with stringer sulphides in drillhole 17315-01E/F. A 13.5-m interval within this wider section graded 1.14% Cu. **Alexis Minerals Corp.** conducted a drilling campaign on the Dunraine property (project P31). Drillhole 17517-03 yielded an assay of 1.57% Cu over 3.7 m.

Kinbauri Gold Corp. acquired the Fiedmont PGE property (project P14) and proceeded with sampling of the mafic and ultramafic intrusive complex located near Barraute. Best results from samples collected in three showings are 1.52 g/t Pt and 4.21 g/t Pd over 1 m. The company is planning a drilling program to test the depth extension of these occurrences.

Témiscamingue Region

In the Témiscamingue region, which includes the entire Pontiac Subprovince, 10 projects were reported, among which 5 gold projects and 5 projects targeting base metal or diamond deposits (Figures 1C-1 and 1C-2).

On the Guillet project (project 69), located about 5 km east of Belleterre, **Vantex Resources Ltd** extracted a bulk sample of about 3,000 tonnes on the A zone at the Lake Expanse showing, which consists of gold-bearing quartz-sulphide veins. The company also completed shallow drillholes. Thirty-six samples randomly collected from the bulk sample yielded an average grade of 5.4 g/t Au. A larger bulk sampling program is planned for 2006. Drillholes also tested the depth extension of the A, AB, and C zones. On the Témiscamingue property (project 70) located 5 km north of Belleterre, joint venture partners **Fieldex Exploration Inc.** and **FNX Mining Company Inc.** intersected in drillhole the Hosking zone, composed of quartz veins and sulphides hosted in deformed and altered gabbro. A 12.3-m section graded 1.3 g/t Au.

They also conducted an important exploration campaign including magnetic and electromagnetic geophysical surveys as well as diamond drillholes on their Témiscamingue property (project P51).

Opportunities for Exploration

BASE METALS

It has been known for several decades now that volcanogenic massive sulphide (VMS) deposits generally occur clustered within a relatively small area of a few tens of square kilometres. The Noranda and Matagami mining camps are two notable examples in the Abitibi. Four significant Cu-Zn discoveries announced in 2005 add proof that the mineral potential near former mines remains significant.

1) The discovery of massive and stringer sulphides (PY-CP) on the West Ansil project (project P52) by **Alexis Minerals Corp.** and **Falconbridge Ltd**, which is located only 2 km southwest of the former Ansil mine, suggests that the Noranda central camp still offers significant VMS potential. The partners also indicated the presence of several other targets near the discovery.

2) The presence of an important stringer sulphide (CP-PY) zone accompanied by intense chlorite and sericite alteration in drillholes on the Louvex property (project P53), located just 1 km south-west of the Louvicourt mine, outlines the potential of this area east of Val-d'Or. Joint venture partners **Alexis Minerals Corp.** and **Novicourt Inc.** indicated that additional drillholes are planned to follow-up on these results.

3) In the Chibougamau area, holes drilled in 2005 by **Woodruff Capital Management** about 3 km southwest of the former Lemoine mine (project P24) along the same stratigraphic horizon, intersected a new stringer sulphide zone characterized by intense chlorite alteration. Another drillhole located 4.6 km east of the former mine also intersected 250 m of zinc and copper-rich stringers. The company controls a 17-km-long segment of the favourable Lemoine horizon, and has recently acquired an interest over an 18-km segment of the Scott Lake horizon, interpreted as the folded equivalent of the Lemoine stratigraphy, located 20 km west of Chibougamau.

4) Also in the Chibougamau area, **Campbell Resources Inc.** obtained very good results from a deep-drilling program on the Corner Bay property (project P23), located along the southern limb of the Lac Doré Complex. These drillholes tested the depth extension of the deposit (measured resources of 642,000 metric tonnes grading 5.19% Cu and inferred resources of 249,000 metric tonnes grading 5.62% Cu, using a cut-off grade of 3% Cu) and preliminary results are very encouraging.

The results obtained in these four areas outline the mineral potential existing in the shadow of past-producing mines and thus opens up exploration opportunities in the immediate vicinity of other VMS deposits in the Abitibi Subprovince.

1C

PRECIOUS METALS

Following recent discoveries along the Cadillac Tectonic Zone (CTZ), the Cadillac mining camp, located midway between Rouyn-Noranda and Val-d'Or, has become a major hotspot for gold exploration in Québec. Doucet and Lafrance (2005) conducted a study of the deep-seated gold potential of the Cadillac mining camp, which includes a description and historical overview of gold deposits and recent discoveries along the CTZ.

The most significant recent discovery took place in 2002 at the Lapa (Au-Ag) deposit located 7 km east of Cadillac and held by **Agnico-Eagle Mines Ltd.** Probable reserves are estimated at 4.08 Mt grading 8.91 g/t Au, for a total of 1.2 million ounces of gold. The ore zone has been traced over a strike length of 430 m and a vertical distance of 650 m, to 1150 m depth. It forms a horizon known as the Contact Zone, hosted in a longitudinal shear zone within mafic-ultramafic rocks of the Piché Group in contact with sedimentary rocks of the Cadillac Group. The Contact Zone contains sericite and biotite alteration, quartz veins and disseminated arsenopyrite, stibnite, pyrrhotite, and visible gold. At depth, the Contact Zone is characterized by a lower sulphide content, a higher frequency of coarse gold, and a more intense silicification. The sinking of a 823 m depth exploration shaft, undertaken in the fall 2004, should be completed at the end of 2006.

Following the discovery of the Lapa deposit, adjacent properties to the west were drill-tested by **Queenston Mining Inc.** and **Globex Mining Enterprises Inc.** and gold-bearing zones were intersected along the inferred extension of the Contact Zone. The eastward extension of the Contact Zone near the Maritime Cadillac gold deposit has not been tested at depth. To the west and east of the Lapa deposit, the depth extension of small gold deposits located along the CTZ have seen very little exploration (Doucet and Lafrance, 2005).

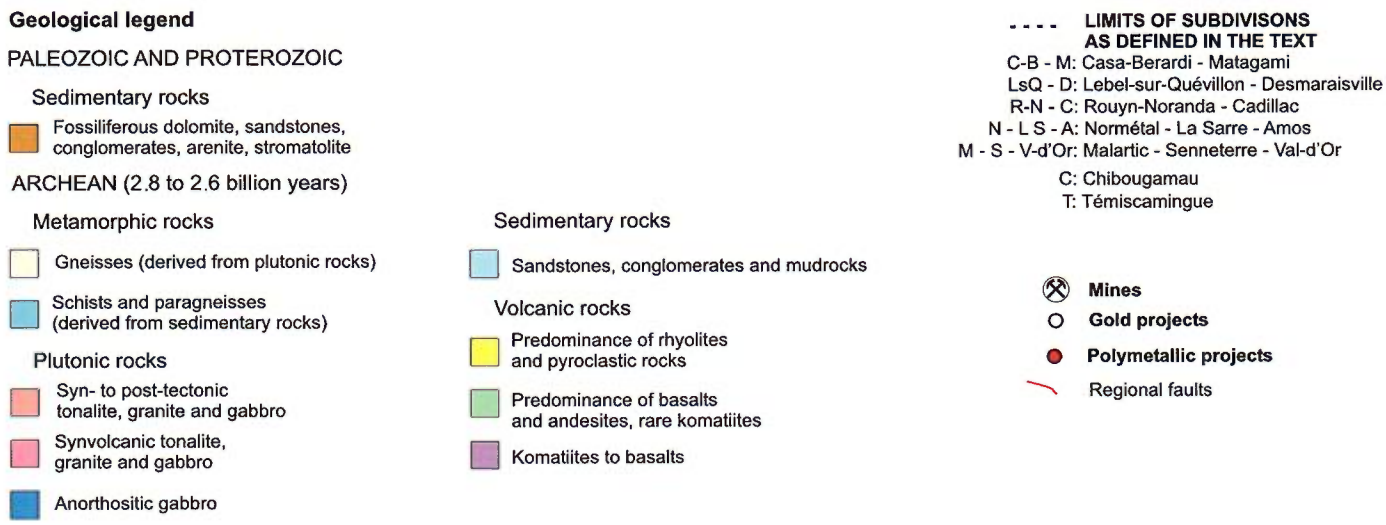


Figure 1C-1. Geological legend of maps of the Abitibi and Pontiac subprovinces (Figures 1C-1 and 1C-2).

1C

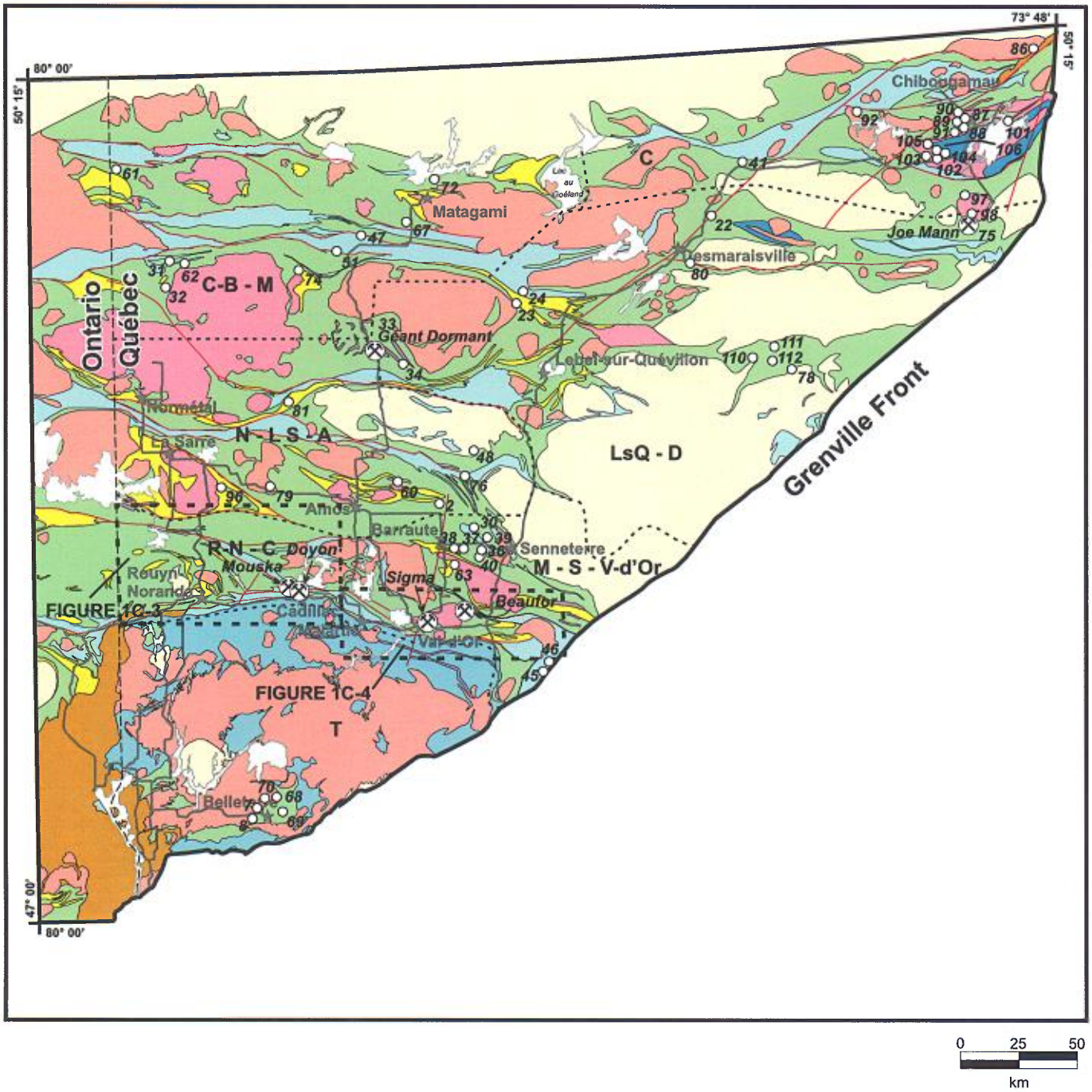


Figure 1C-1. Exploration projects for gold in the Abitibi and Pontiac subprovinces for 2005. Modified from Hocq and Verpaelst (1994).

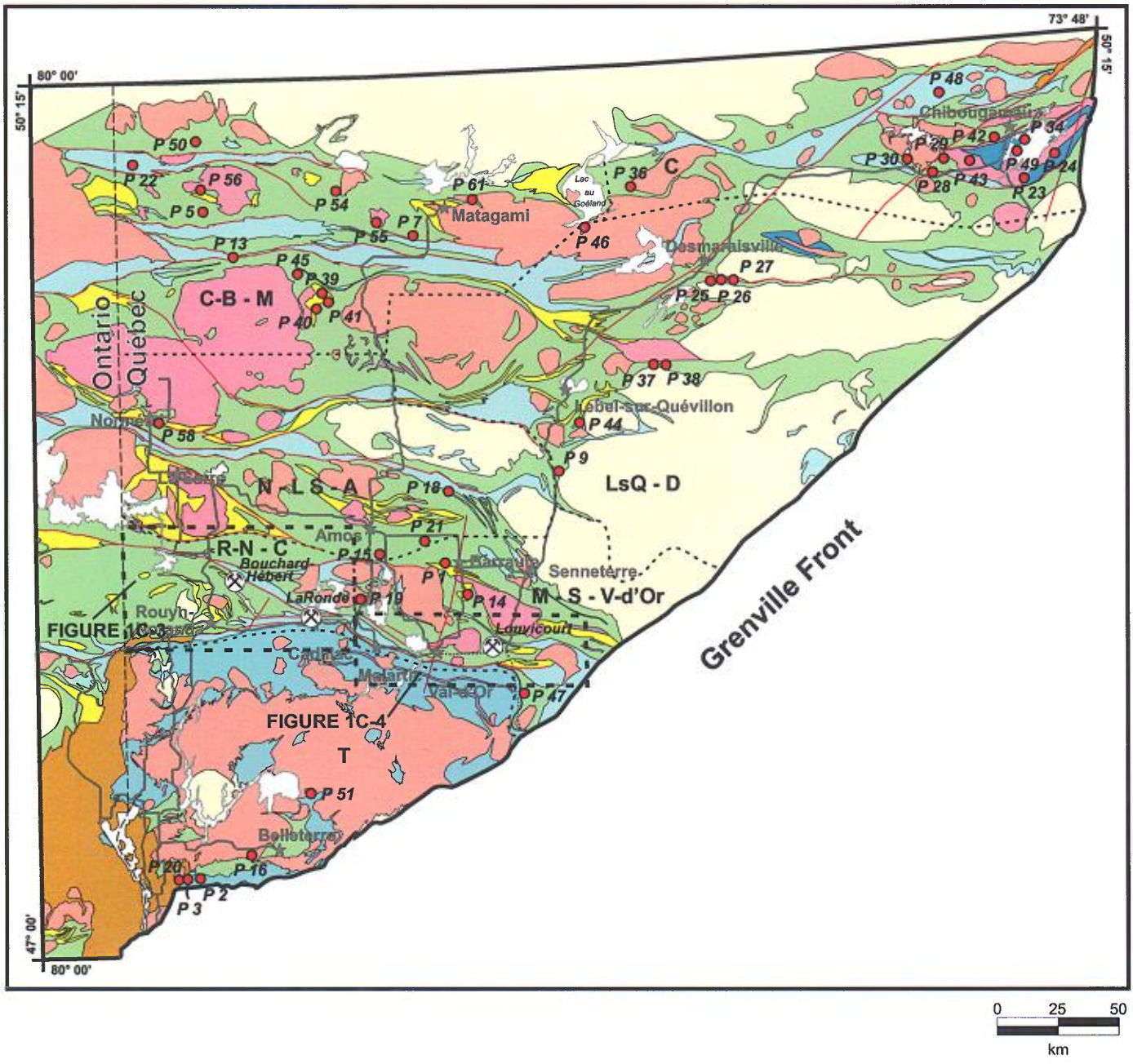
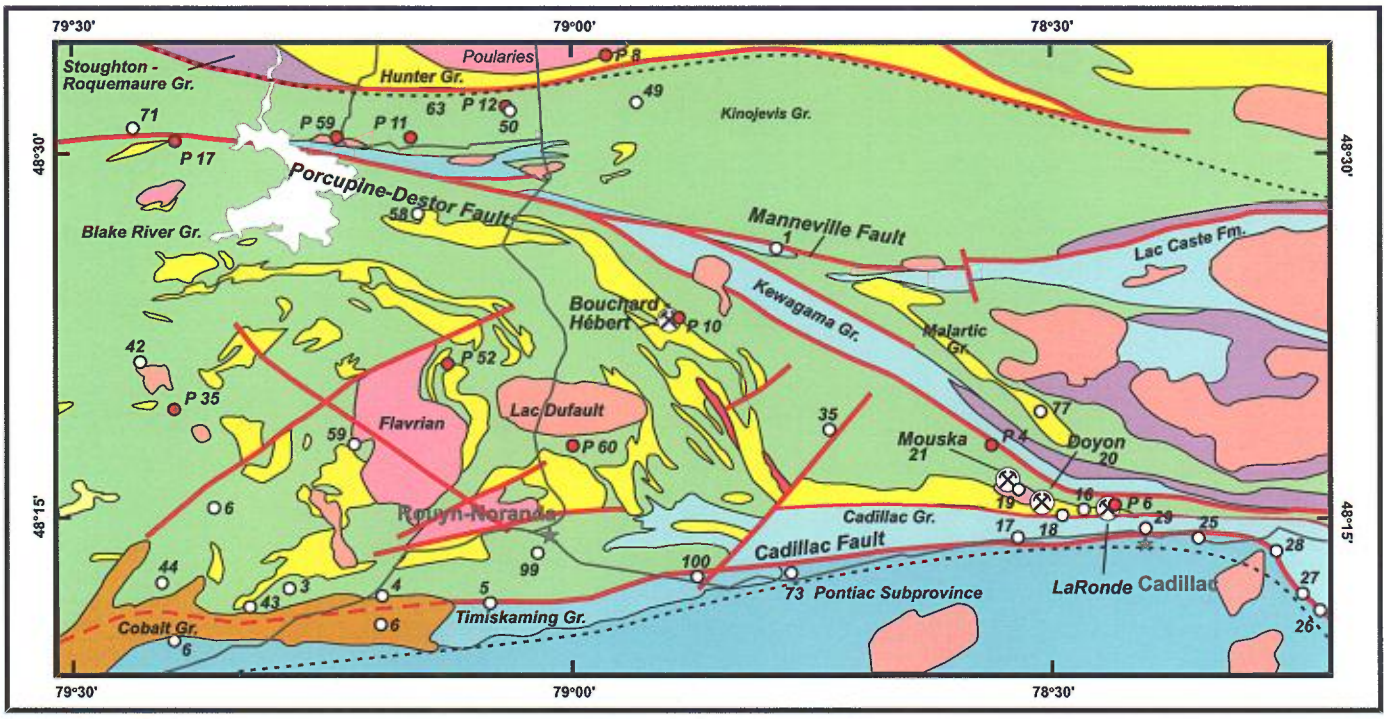


Figure 1C-2. Exploration projects for base metals in the Abitibi and Pontiac subprovinces for 2005. Modified from Hocq and Verpaelst (1994). (See the legend on page 20)

1C



Geological legend

PROTEROZOIC

Sedimentary rocks

- Sandstones, conglomerates, arenites, stromatolite

ARCHEAN

Plutonic rocks

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

Sedimentary rocks

- Cadillac type
- Pontiac type
- Timiskaming type

Volcanic rocks

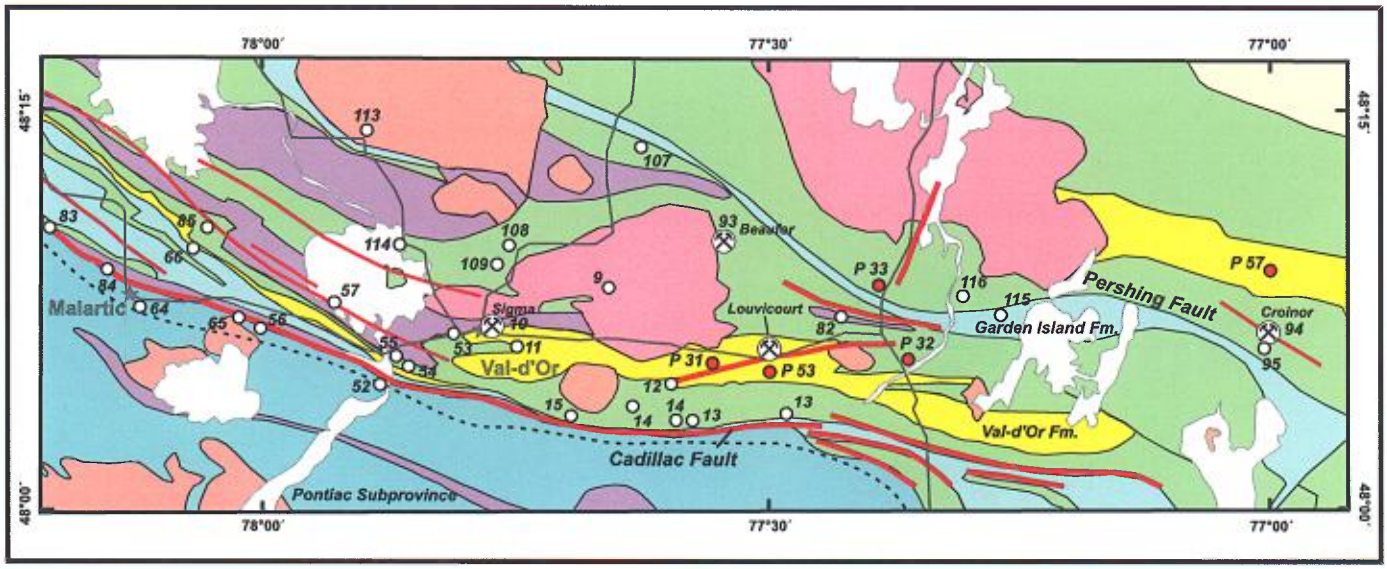
- Rhyolites
- Basalts
- Komatiites to basalts

- LIMITS OF SUBDIVISIONS AS DEFINED IN THE TEXT
- Mines
- Projects
  - Gold
  - Polymetallic
- Faults

0 10 20
km

Figure 1C-3. Exploration projects and mines in the Rouyn-Noranda–Cadillac area for 2005. Modified from Avramtchev and Lebel-Drolet (1981) and Couture (1991).

1C



Geological legend

ARCHEAN

Plutonic rocks

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

Metamorphic rocks

- Gneisses (derived from plutonic rocks)

Sedimentary rocks

- Cadillac type
- Pontiac type

Volcanic rocks

- Rhyolites
- Basalts
- Komatiites to basalts

LIMITS OF SUBDIVISIONS AS DEFINED IN THE TEXT

Mines

Projects

- Gold
- Polymetallic

Faults

0 10 20

km

Figure 1C-4. Exploration projects and mines in the Malartic–Val-d'Or area for 2005. Modified from Avramtchev and Lebel-Drolet (1981) and Couture (1991).

TABLE 1C-1 - Exploration projects for gold in the Abitibi and Pontiac subprovinces in 2005.

Nos.	TOWNSHIPS	Fig.	NTS	COMPANIES / PROSPECTORS	PROJECTS	SUBSTANCES	WORKS [1]
1	Aiguebelle, Clériсy, Destor	1C-3	32 D/07	Typhoon Exploration Inc.	Fayolle	Au	D(30:8832), Gs(r), TE
2	Barraute, Carpentier	1C-1	32 C/12	Phoenix Matachewan Mines Inc.	Swanson	Au, base metals	D(4:635), GpEl
3	Beauchastel	1C-3	32 D/03	Richmont Mines Inc.	Francoeur	Au	D(1:155)
4	Beauchastel	1C-3	32 D/03	Richmont Mines Inc.	Wasamac	Au	D(1:375)
5	Beauchastel	1C-3	32 D/03	Yorbeau Ressources Inc.	Rouyn	Au	D(11:3743)
6	Beauchastel, Dasserat, Rouyn	1C-3	32 D/03	Cadillac West Explorations Inc. / Resource Finance & Investment Ltd	Cadillac West Gold	Au	D(7:2496)
7	Blondeau	1C-1	31 M/07	SearchGold Resources Inc.	Lac Chevrier	Au	D(?:?)
8	Blondeau, Guillet	1C-1	31 M/07	NioGold Mining Corp.	Blondeau-Guillet	Au, Cu, Zn, Ag	G, Gs(sl), Pr, S, TE
9	**Bourlamaque**	**1C-4**	**32 C/04**	**Alexis Minerals Corp.**	**Lac Herbin**	**Au**	**D(11:1245), FM, TE**
10	*Bourlamaque*	*1C-4*	*32 C/04*	*Century Mining Corp.*	*Mine Sigma-Lamaque*	*Au*	*D(?:12 000)*
11	Bourlamaque	1C-4	32 C/04	Century Mining Corp.	Lamaque	Au	D(?:?)
12	Bourlamaque, Louvicourt	1C-4	32 C/03	South-Malartic Exploration Inc. / Cambior Inc.	Tex-Sol	Au	D(5:1188)
13	Bourlamaque, Louvicourt	1C-4	32 C/03, 04	Cambior Inc.	Akasaba - Bloc Sud	Au	D(9:3331), GpEl, GpMa
14	Bourlamaque, Louvicourt	1C-4	32 C/03, 04	Cambior Inc. / Aur Resources Inc.	Valdora-Annamaque	Au	D(10:2571)
15	Bourlamaque, Louvicourt	1C-4	32 C/03, 04	Alexis Minerals Corp.	Groupe Cadillac	Au, Ag, Cu, Zn	D(?:?)
16	Bousquet	1C-3	32 D/01, 02, 07, 08	Agnico-Eagle Mines Ltd	Ellison	Au, Ag, Cu, Zn	D(1:361)
17	Bousquet	1C-3	32 D/02	Agnico-Eagle Mines Ltd	Norgold	Au, Ag, Cu, Zn	D(1:754)
18	Bousquet	1C-3	32 D/02	Cambior Inc.	Westwood-Warrenmac	Au	D(8:6303), GpEm(b), Gs(r)
19	Bousquet	1C-3	32 D/02	Cambior Inc.	Mouska	Au	D(2:3016), GpEm(b), Gs(r)
20	*Bousquet*	*1C-3*	*32 D/02*	*Cambior Inc.*	*Mine Doyon*	*Au, Ag*	*D(651:61 956), G, GpEm(b), T*
21	*Bousquet*	*1C-3*	*32 D/02*	*Cambior Inc.*	*Mine Mouska*	*Au, Ag*	*D(190:37 256)*
22	Boyvinet	1C-1	32 F/09, 32 G/12	NioGold Mining Corp.	Boyvinet	Au	D(5:443)
23	Bruneau, Desjardins	1C-1	32 F/06	Strateco Resources Inc. / GéoNova Explorations Inc.	Cameron	Au	D(5:1300)
24	Bruneau, Desjardins	1C-1	32 F/06	Strateco Resources Inc. / GéoNova Explorations Inc.	Discovery	Au	D(4:1965), G, Rsi
25	Cadillac	1C-3	32 D/01	Globex Mining Entreprises Inc. / Queenston Mining Inc.	Wood-Pandora	Au	D(6:?)

TABLE 1C-1 - Exploration projects for gold in the Abitibi and Pontiac subprovinces in 2005.

Nos.	TOWNSHIPS	Fig.	NTS	COMPANIES / PROSPECTORS	PROJECTS	SUBSTANCES	WORKS [1]
26	Cadillac	1C-3	32 D/01	Agnico-Eagle Mines Ltd	Chibex Sud	Au	D(6:3688)
27	Cadillac	1C-3	32 D/01	Agnico-Eagle Mines Ltd	Chibex Nord	Au	D(10:4145)
28	**Cadillac**	**1C-3**	**32 D/01**	**Agnico-Eagle Mines Ltd**	**Lapa**	**Au**	**TE**
29	Cadillac	1C-3	32 D/01	Radisson Mining Resources Inc.	O'Brian - Kewagama	Au	D(5:3693)
30	Carpentier	1C-1	32 C/05	Abitex Resources Inc.	Jolin	Au	D(7:1278)
31	**Casa Berardi, Dieppe, Récher, Raymond, Puiseaux**	**1C-1**	**32 E/10, 11**	**Aurizon Mines Ltd**	**Casa Berardi**	**Au**	**D(?:19 071), GpEl, Gs(sl, h)**
32	Casa Berardi, Laberge	1C-1	32 E/06,11	Cambior Inc. / Cancor Mines Inc.	Gémini-Turgeon	Au, Cu, Zn	D(11:4198), GpEl(g), GpEm(b), GpMt(g), Gs(r), TE
33	*Chaste*	*1C-1*	*32 F/04*	*Cambior Inc.*	*Mine Géant Dormant*	*Au*	*D(?:?)*
34	Chaste, Glandelet	1C-1	32 E/01, 32 F/04	Cambior Inc. / Aurizon Mines Ltd	Dormex	Au	D(8:3181), GpEl(g), GpMa(g)
35	Cléricy	1C-3	32 D/07	Alexis Minerals Corp. / Falconbridge Ltd	Noralex - Au	Au	D(?:?)
36	Courville	1C-1	32 C/06	South-Malartic Exploration Inc.	Belcourt	Au	GpEl, GpMa
37	Courville	1C-1	32 C/05	Golden Valley Mines Ltd	Perestroïka	Au	GpEl, GpMa
38	Courville	1C-1	32 C/05	Golden Valley Mines Ltd	Perestroïka West	Au	GpEl, GpMa
39	Courville	1C-1	32 C/06	M. Ouellet	Ouellet	Au, Ag	T
40	**Courville**	**1C-1**	**32 C/06**	**Pershimco Resources Inc.**	**Courville**	**Au**	**B(12540:1,95), D(14:1084)**
41	Currie	1C-1	32 F/07	Mirabel Resources Inc.	Lac Rose	Au	D(?:400), T
42	Dasserat	1C-3	32 D/06	Mirabel Resources Inc. / Globex Mining Enterprises Inc.	Russian Kid	Au	TE
43	Dasserat	1C-3	32 D/03	SearchGold Resources Inc.	Lac Fortune Ouest	Au	D(?:?)
44	Dasserat	1C-3	32 D/03	Pro-Spect-Or Resources Inc.	Dasserat-Galloway	Au, Cu	Pr, S, T
45	Denain	1C-1	31 N/14	Exploration Nid'Or (2000) Inc	Denain	Au	S, T
46	Denain	1C-1	31 N/14	Mirabel Resources Inc.	Denain	Au	D(?:2300), T
47	Desmazures	1C-1	32 E/09	Cancor Mines Inc.	Allard	Au, Ag	GpEl, GpMa
48	Despinassy	1C-1	32 C/11, 14	Alto Ventures Ltd / Commander Resources Ltd	Despinassy	Au	D(20:5307), GpMa
49	Destor	1C-3	32 D/10	Golden Valley Mines Ltd	Sea Serpent	Au	GpEl, GpMa
50	Destor	1C-3	32 D/11	Golden Valley Mines Ltd	Double Trouble	Au	D(4:346), GpEl, GpMa, Pr
51	Douay	1C-1	32 E/09	Société d'Exploration minière Vior Inc.	Douay Ouest	Au	D(14:3384), FM, Re
52	Dubuisson	1C-4	32 C/04	Golden Valley Mines Ltd	Lac Lemoyne	Au	GpEl, GpMa
53	Dubuisson	1C-4	32 C/04	Metanor Resources Inc.	Dubuisson	Au, Cu	D(1:490), GpEl(b,g), GpEm, GpGr

TABLE 1C-1 - Exploration projects for gold in the Abitibi and Pontiac subprovinces in 2005.

Nos.	TOWNSHIPS	Fig.	NTS	COMPANIES / PROSPECTORS	PROJECTS	SUBSTANCES	WORKS [1]
54	Dubuisson	1C-4	32 C/04	Agnico-Eagle Mines Ltd	Bigué	Au	D(2:697), M
55	**Dubuisson**	**1C-4**	**32 D/01**	**Agnico-Eagle Mines Ltd**	**Goldex**	**Au**	**M**
56	Dubuisson	1C-4	32 C/04	Northern Star Mining Corp.	Midway	Au	TE, M
57	**Dubuisson**	**1C-4**	**32 C/04**	**Wesdome Gold Mines Inc.**	**Kiena**	**Au**	**D(131:?), S, TE**
58	Duparquet	1C-3	32 D/06	Normabec Mining Resources Ltd / GéoNova Explorations inc. / SOQUEM INC.	Pitt Gold	Au	D(17:9324), Te
59	Duprat	1C-3	32 D/06	Alexis Minerals Corp. / Falconbridge Ltd	Flavrian, COOF	Au, Cu	D(12:4084), G, Gs(r)
60	Duvernay	1C-1	32 C/12	Ressources d'Arianne inc.	Standard Gold	Au	D(?:1000), Pr, T
61	Enjalran, Massicotte	1C-1	32 E/13, 14	Stratabound Minerals Corp.	Enja	Au, Ag, Cu, Zn	GpMa, Rsi, TE
62	Estrées	1C-1	32 F/10	Cambior Inc. / Canley Development Inc.	Estrées-Caribou	Au, Cu, Zn	D(6:2151), Pg
63	Fiedmont	1C-1	32 C/05	Gianor Mineral Inc.	Rhyolite	Au	Pr, T
64	Fournière	1C-4	32 D/01	Osisko Exploration Ltd	Canadian Malartic	Au	D(25:?), G, S
65	Fournière	1C-4	32 D/01	Cambior Inc.	Piché	Au	D(3:1769)
66	Fournière, Malartic	1C-4	32 D/01	Richmont Mines Inc.	Camflo N.O.	Au	D(3:881)
67	Galinée	1C-1	32 F/12	Cambior Inc.	Galinée-Newmont	Au, base metals	D(6:1960), GpEl(g), GpEm(b), GpMa(g), Gs(r), TE
68	Guillet	1C-1	31 M/07	Exploration Nid'Or (2000) Inc.	Lac Thibeault	Au	S, T
69	Guillet	1C-1	31 M/07	Vantex Resources Ltd	Guillet - Lake Expanse	Au	B(3000:5,4), D(?:?), Gs, S, T, TE
70	Guillet	1C-1	31 M/07	FNX Mining Company Inc. / Exploration Fieldex Inc.	Témiscamingue	Au, Zn, Cu	D(14:3000)
71	Hébécourt	1C-3	32 D/11	Cambior Inc.	Porcupine	Au	D(1:1122), GpEl, GpMt(g)
72	Isle-Dieu	1C-1	32 F/12	Northern Mining Explorations Ltd	Isle-Dieu	Au, base metals	GpEm, TE
73	Joannès	1C-3	32 D/02	Stellar Pacific Ventures Inc. / Vantex Resources Ltd	Héva	Au	D(10:2500)
74	Joutel	1C-1	32 E/09	Agnico-Eagle Mines Ltd	Joutel	Au	D(3:628), GpEm
75	*La Dauversière*	*1C-1*	*32 G/08, 09*	*Campbell Resources Inc.*	*Mine Joe Mann*	*Au, Ag, Cu*	*D(?:?)*
76	La Morandière, Rochebaucourt	1C-1	32 C/11, 12	Cambior Inc.	Morancourt	Au	TE
77	La Pause	1C-3	32 D/04, 08	Britannica Resources Corp.	Chassignole	Au, Cu	Pr
78	Lacroix	1C-1	32 G/03	J. Descarreaux et Ass. Ltée	Lacroix	Au	D(3:435), GpEl
79	Launay	1C-1	32 D/10	Melkior Resources Inc.	Launay	Au	G, Gs(h), GpMa, Pr
80	Le Sueur	1C-1	32 F/08, 09	Metanor Resources Inc. / Halo Resources Ltd	Bachelor	Au	D(80:19 802), GpEl, TE

TABLE 1C-1 - Exploration projects for gold in the Abitibi and Pontiac subprovinces in 2005.

Nos.	TOWNSHIPS	Fig.	NTS	COMPANIES / PROSPECTORS	PROJECTS	SUBSTANCES	WORKS [1]
81	Ligneris	1C-1	32 D/15	Globex Mining Entreprises Inc. / Queenston Mining Inc.	Tut	Au	D(?:?)
82	Louvicourt	1C-4	32 C/03, 04	Louvem Mines Inc.	Monique	Au	D(1:275)
83	Malartic	1C-4	32 D/01	Agnico-Eagle Mines Ltd	Amphi Nord	Au	D(9:2542)
84	**Malartic**	**1C-4**	**32 D/01**	**Richmont Mines Inc.**	**Division East Amphi**	**Au**	**B(6500:3,42), D(?:18 648), Re,TE**
85	Malartic, Fournière	1C-4	32 D/01	NioGold Mining Corp.	Camflo West	Au	Gp, Gs(sl), Pg, S, T, TE
86	McCorkill	1C-1	32 G/16, 32 H/13, 32 I/04, 32 J/01	Typhoon Exploration Inc.	Monexco	Au	Gs(sl)
87	McKenzie	1C-1	32 G/16	SOQUEM INC / Itamineraque Resources Inc.	Brosman (1230)	Au, Cu	D(6:1797)
88	McKenzie	1C-1	32 G/16	SOQUEM INC / Itamineraque Resources Inc.	Gilman (1291)	Au, Cu	D(1:240)
89	McKenzie	1C-1	32 G/16	SOQUEM INC / Itamineraque Resources Inc.	McKenzie (4581)	Au, Cu	D(2:650)
90	McKenzie	1C-1	32 G/16	SOQUEM INC / Itamineraque Resources Inc.	MOP II (1206)	Au, Cu	D(4:1330)
91	McKenzie, Scott	1C-1	32 G/16	SOQUEM INC / Itamineraque Resources Inc.	David (1165)	Au, Cu	D(3:770)
92	Opémisca	1C-1	32 G/16	SOQUEM INC / Nimsken Corporation Inc.	Michwacho (1340)	Au, Cu, PGE	T
93	*Pascalis*	*1C-4*	*32 C/04*	*Richmont Mines Inc.*	*Mine Beaufor*	*Au, Ag*	*D(?:13 023), T*
94	**Pershing**	**1C-4**	**32 C/03**	**South-Malartic Exploration Inc.**	**Mine Croinor**	**Au**	**B(24 363:5,0), D(4:993), Re, TE**
95	Pershing, Vauquelin, Haig	1C-4	32 C/03	South-Malartic Exploration Inc.	Croinor	Au	D(4:993), TE
96	Poularies	1C-1	32 D/10	Golden Valley Mines Ltd	Rivière Loïs	Au, base metals	GpEl, GpMa
97	Queylus, La Dauversière	1C-1	32 G/09	Cambior Inc.	Lac Palmer	Au	G, GpEm(a), Gs(t), Pr
98	Rohault, La Dauversière	1C-1	32 G/08, 09	Campbell Resources Inc. / SOQUEM INC.	Joe Mann (Meston)	Au, Ag, Cu	D(11:3734)
99	Rouyn	1C-3	32 D/03	Alexis Minerals Corp.	Lac Pelletier	Au	TE
100	Rouyn, Joannès	1C-3	32 D/02	Cambior Inc.	Rouyn-Merger	Au	D(9:3790), Pg
101	*Roy*	*1C-1*	*32 G/16*	*Campbell Resources Inc.*	*Mine Copper Rand*	*Au, Cu*	*D(?:?)*
102	Scott	1C-1	32 G/15	Golden Valley Mines Ltd	Lac Delieux	Au	GpEl, GpMa
103	Scott	1C-1	32 G/15	Golden Valley Mines Ltd	Ile Joe	Au	GpEl, GpMa
104	Scott	1C-1	32 G/15	Golden Valley Mines Ltd	Béarmac	Au	GpEl, GpMa
105	Scott	1C-1	32 G/15	Golden Valley Mines Ltd	Bejopipa	Au	GpEl, GpMa
106	Scott	1C-1	32 G/15	Northern Mining Explorations Ltd	Claveau	Au, Cu	D(6:1086), GpEl, GpMa, Pr, TE
107	Senneville	1C-4	32 C/04	Golden Valley Mines Ltd	Lac Laverdière	Au	GpEl, GpMa

TABLE 1C-1 - Exploration projects for gold in the Abitibi and Pontiac subprovinces in 2005.

Nos.	TOWNSHIPS	Fig.	NTS	COMPANIES / PROSPECTORS	PROJECTS	SUBSTANCES	WORKS [1]
108	Senneville	1C-4	32 C/04	Golden Chalice Resources Inc.	Senneville	Au	GpEm, GpMa
109	Senneville, Vassan	1C-4	32 D/04	Ressources JCML Inc.	Val d'Or	Au, Cu	GpEl, GpEm, GpMa
110	Urban	1C-1	32 G/04	Hinterland Metals Inc.	Lockout	Au	GpEl, GpMa, T
111	Urban	1C-1	32 G/04	Murgor Resources Inc. / Freewest Resources Canada Inc.	Windfall	Au	D(79:11 046), G, GpEl (s), Gs(r), T
112	Urban	1C-1	32 G/04	Noront Resources Ltd	Windfall Lake	Au	D(43:?), G, Gs(r), T
113	Vassan	1C-4	32 C/04	A. Gaulin	Gaulin	Au, Ag, Cu	GpEl, Gc(sl)
114	Vassan	1C-4	32 C/04	Stellar Pacific Ventures Inc.	Vassan	Au	D(10:2500)
115	Vauquelin	1C-4	32 C/03	South-Malartic Exploration Inc. / C2C Inc.	Bruell	Au	S(12:1089), TE
116	Vauquelin	1C-4	32 C/03	Melkior Resources Inc.	Vauquelin	Au	G

1 = See the legend of abbreviations and the signification of italic and bold type in the appendix II.

TABLE 1C-2 - Exploration projects for base metals in the Abitibi and Pontiac subprovinces for 2005.

Nos.	TOWNSHIPS	Fig.	NTS	COMPANIES / PROSPECTORS	PROJECTS	SUBSTANCES	WORKS [1]
P1	Barraute	1C-2	32 C/12	Abcourt Mines Inc.	Abcourt-Barvue	Zn-Ag	TE
P2	Blondeau	1C-2	31 M/07	J.-R. Frédéric	Lac Pleau	Diamond-Cu-Zn-Ni-Co-Cr	G, TE
P3	Blondeau, Cuillet, La Noue, Bellefeuille	1C-2	31 M/07	Géotech Exploration	Lac Diamant	Diamond-Ni-Cu-PGE-REE	TE, G
P4	Bousquet	1C-3	32 D/08	F. Valiquette	Chassignolle	Cu-Au	GpMa
P5	Brouillan, Carheil	1C-2	32 E/14	Woodruff Capital Management Inc.	Selbaie West	Cu-Zn-Au-Ag	GpEm(A)
P6	*Cadillac*	*1C-3*	*32 D/08*	*Agnico-Eagle Mines Ltd*	*LaRonde Mine*	*Cu-Zn-Au-Ag*	*D(?:?)*
P7	Cavelier, Galinée	1C-2	32 F/12	SOQUEM INC. / Metco Resources Inc.	Du Dôme-Matagami (1288)	Zn-Cu	D(16:7791), GpEm, GpMa, GpEm(B)
P8	Destor, Poularies	1C-3	32 D/10	Globex Mining Enterprises Inc.	Lyndhurst	Cu-Zn	GpEl
P9	Ducros	1C-2	32 C/11	Golden Valley Mines Ltd	Ducros	Ni-Cu	GpMa(G), GpEm(G), Pr, S
P10	Dufresnoy, Clériсy, Destor	1C-3	32 D/07	Breakwater Resources Ltd	Bouchard-Hébert	Cu-Zn-Au-Ag	D(21:10138), GpMa, GpEm(B), GpEl
P11	Duparquet	1C-3	32 D/11	Golden Valley Mines Ltd	Golden Jet	Cu-Zn-Au-Ag	GpMa, GpEm, GpEl
P12	Duparquet, Destor	1C-3	32 D/11	Golden Valley Mines Ltd	Hunter Mine Group	Cu-Zn-Ag	GpMa, GpEm, GpEl
P13	Estrées, Estrades	1C-2	32 E/10	Woodruff Capital Management Inc.	Estrades	Cu-Zn-Au-Ag	D(6:3203), GpEm(B)
P14	Fiedmont	1C-2	32 C/05	Kinbauri Gold Corporation	Fiedmont EGP	Ni-Cu-PGE	Pr, T, S
P15	Figuery	1C-2	32 D/08	Agnico-Eagle Mines Ltd	Figuery	Cu-Zn-Au-Ag	D(3:1754), GpEm
P16	Gaboury	1C-2	31 M/06	Hinterland Metals Inc. / CZM Capital Corp.	Lorraine	Ni-Cu-PGE-Au	D(?:?)
P17	Hébécourt	1C-3	32 D/06	Woodruff Capital Management Inc.	Hébécourt	Cu-Zn-Au-Ag	D(4:2596), GpEm(B)
P18	La Morandière	1C-2	32 C/12	Woodruff Capital Management Inc.	Castagnier	Cu-Zn-Au-Ag	D(4:1571), GpEm(B)
P19	La Motte	1C-2	32 D/08	Les Pierres du Nord	Moly Hill	Mo	B
P20	La Noue, Guay	1C-2	31 M/07	Géotech Exploration	Lac des Mouffettes	Diamond-Au-Ni-Cr-REE	TE
P21	Landrienne	1C-2	32 C/05	Woodruff Capital Management Inc.	Landrienne	Cu-Zn-Au-Ag	D(4:1734), GpEm(B)
P22	La Peltrie	1C-2	32 E/14	D. Adam	Olifred	Diamond	GpMa
P23	Lemoine	1C-2	32 G/09	Campbell Resources Inc.	Corner Bay	Cu-Ag	D(13:11338), GpEm(B), GpEm
P24	Lemoine, Rinfret	1C-2	32 G/16	Woodruff Capital Management Inc.	Lemoine	Cu-Zn-Au-Ag	D(9:6583)
P25	Le Tac	1C-2	32 F/08	Ressources Melkior Inc.	Kimber	Diamond	G
P26	Le Tac	1C-2	32 F/08	Ressources Melkior Inc.	Lite	Diamond	G
P27	Le Tac	1C-2	32 F/08	NioGold Mining Corporation	Le Tac	Cu-Zn-Ag-diamond	D(8:2271)
P28	Lévy	1C-2	32 G/15	2736-1179 Québec Inc.	Cooke	Zn-Pb-Ag-Au	D(15:5998)
P29	Lévy	1C-2	32 G/15	Ressources MSV Inc.	Dimanche	Cu-Zn-Au-Ag	D(2:517), GpMa, GpEm, T

TABLE 1C-2 - Exploration projects for base metals in the Abitibi and Pontiac subprovinces for 2005.

Nos.	TOWNSHIPS	Fig.	NTS	COMPANIES / PROSPECTORS	PROJECTS	SUBSTANCES	WORKS [1]
P30	Lévy	1C-2	32 G/15	Explorateurs Innovateurs de Québec Inc.	Opémisca Mine	Cu-Au	D(13:250), Gp
P31	Louvicourt	1C-4	32 C/04	Alexis Minerals Corporation	Dunraine	Cu-Zn-Au-Ag	D(3:1782)
P32	Louvicourt	1C-4	32 C/03	Beaufield Consolidated Resources Inc. / Aur Resources Inc.	Mainstreet	Cu-Zn-Au-Ag	GpMa, Gs, G
P33	Louvicourt	1C-4	32 C/03	Gianor Mineral Inc.	Louvicourt	Cu-Zn-Au-Ag	Pr, T
P34	McKenzie	1C-2	32 G/16	Ressources MSV Inc.	Jaculet	Cu-Au-Ag	D(5:3250), GpMa, GpEm, GpEm(B)
P35	Montbray	1C-3	32 D/06	Golden Valley Mines Ltd	Diguedou	Cu-Zn-Ag	GpMa, GpEm
P36	Montviel	1C-2	32 F/15	NioGold Mining Corporation	Montviel	Nb-P-REE-Cu-Zn-diamond	Gc(sl), Pr, S
P37	Mountain	1C-2	32 F/01	Metco Resources Inc. / Breakwater Resources Ltd	Mountain A	Zn-Cu-Ag-Au	D(?:?)
P38	Mountain, Ruette	1C-2	32 F/01	Metco Resources Inc.	Mountain B	Zn-Cu-Ag-Au	D(?:?)
P39	Poirier	1C-2	32 E/08	Mines Cancor Inc. / AVR Resources	Bonfortel	Cu-Zn-Au-Ag	D(5:3821), GpEm, GpMa, GpGr
P40	Poirier	1C-2	32 E/08	Mines Cancor Inc. / SOQUEM INC.	Kistabiche	Zn-Cu-Ag-Au	D(10:7000), GpEm, GpMa, GpGr, GpEl
P41	Poirier	1C-2	32 E/08	Mines Cancor Inc.	Poirier	Zn-Cu-Au-Ag	GpMa, GpEm
P42	Scott, Barlow	1C-2	32 G/15	SOQUEM INC.	William (1362)	Cu-Zn	GpEm P
P43	Scott, Lévy	1C-2	32 G/15	Woodruff Capital Management Inc.	Scott	Cu-Zn-Au-Ag	GpEm(A)
P44	Tonnancour, Josselin	1C-2	32 C/14, 15	Globex Mining Enterprises Inc.	Tonnancour	Cu-Zn	Pr, Gp(A)
P45	Valrennes, Joutel	1C-2	32 E/08	Breakwater Resources Ltd	Valrennes	Cu-Zn-Au	Pr
P46	Vignal	1C-2	32 F/10	Explorateurs Innovateurs de Québec Inc.	Lac au Goellan	Ni-Cu	Gp, T, S
P47	Villebon	1C-2	31 N/14	Louvicourt Gold Mines	Villebon	Cu-Ni-Co-Pt-Pd-Rh	TE
P48		1C-2	32 G, 32 J	Dianor Resources Inc.	La Trève	Diamond	GpMa(G), Gc(sl)
P49		1C-2	32 G/16	Novawest Resources Inc.	Chibougamau	Cu-Au-Ag	D(4:993), Pr, T, GpEm, GpMa
P50		1C-2	32 E/15, 32 L/02	Ressources Majescor Inc.	Nothaway	Diamond	Rcd(4:206), Gs(t)
P51		1C-2	31 M/08, 09, 10, 11	Exploration Fieldex Inc. / FNX Mining Company	Temiscamingue	Cu-Ni-Au	D(?:3000), GpEm, GpMa, Pr, T
P52	Duprat	1C-3	32 D/06	Alexis Minerals Corporation / Falconbridge Ltd	West Ansil	Cu-Zn-Au-Ag	D(?:?)
P53	Louvicourt	1C-4	32 C/03	Alexis Minerals Corporation / Novicourt Inc.	Louvex	Cu-Zn-Au-Ag	D(?:?)
P54	Ste-Hélène, La Gauchetière, Bapst	1C-2	32 E/16	SOQUEM INC.	Samson (1091)	Cu-Zn	D(2:506), GpEm, GpMa, GpEm(B)
P55	Desmazures	1C-2	32 E/09	SOQUEM INC.	B6-20 McIvor (1214)	Cu-Zn	D(1:228), GpEm, GpMa, GpEm(B)
P56	Brouillan	1C-2	32 E/14	SOQUEM INC.	Wagosic (1338)	Cu-Zn	GpEm

TABLE 1C-2 - Exploration projects for base metals in the Abitibi and Pontiac subprovinces for 2005.

Nos.	TOWNSHIPS	Fig.	NTS	COMPANIES / PROSPECTORS	PROJECTS	SUBSTANCES	WORKS [1]
P57	Tavernier, Pershing	1C-4	32 C/02, 03	SOQUEM INC.	Matchi-Manitou (1352)	Cu-Zn	GpEm
P58	Des Méloïzes, Perron, Clermont, Rousseau	1C-2	32 D/14	SOQUEM INC.	Lac Des Méloïzes (1356)	Cu-Zn	GpEm
P59	Duparquet, Hébécourt	1C-3	32 D/11	SOQUEM INC.	Ruisseau Deguisier (1357)	Cu-Zn	GpEm
P60	Dufresnoy	1C-3	32 D/07	SOQUEM INC.	Dufault Sud (1359)	Cu-Zn	GpEm, GpMa
P61	Lozeau	1C-2	32 F/14	SOQUEM INC.	Lac Garon (1360)	Cu-Zn	GpEm, GpMa

1 = See the legend of abbreviations and the signification of italic and bold type in the appendix II.

1D

New Québec and Torngat Orogens, Southeast Churchill Province (Core Zone), and Ungava Orogen

Abdelali Moukhsil

Introduction

Composed mainly of Paleoproterozoic rocks, the New Québec (Labrador Trough), Torngat, and Ungava (Cape Smith Belt) orogens cover a significant proportion of northern Québec (figures 1D-1 and 1D-2). The Southeastern Churchill Province includes the New Québec and Torngat orogens and their hinterland (core zone, composed largely of Archean rocks and sometimes referred to as the Rae Province [James *et al.*, 1996; Wardle *et al.*, 2002] [Figure 1D-1]).

The main targeted commodities in the New Québec Orogen and the core zone in 2004 were copper, nickel, platinum group elements (PGE), zinc, and cobalt. The search for diamonds generated some interest in the Torngat Orogen (Figure 1D-1). The Ungava Orogen (Ungava Trough or Cape Smith Belt) once again attracted several exploration companies in the search for nickel, copper, and PGE. All exploration projects conducted by exploration companies and individual prospectors within the study area are listed in Table 1D-1.

New Québec Orogen

GEOLOGICAL OVERVIEW

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 (Clark and Wares, 2004). The Trough is composed of rocks comprising two volcano-sedimentary cycles and a third cycle of metasedimentary rocks (Clark and Wares, 2004).

SEDIMENT-HOSTED URANIUM

The Labrador Trough is known for its sediment-hosted uranium deposits. Clark and Wares (2004) described four deposit types: unconformity-related deposits, sandstone-hosted stratiform deposits, stratiform deposits in mudstones and siltites, and carbonate-hosted stratiform deposits. In 2005, **Waseco Resources Inc.** acquired five properties that contain numerous known uranium occurrences (project 1, Figure 1D-1). The company proceeded with a compilation of previous work and an interpretation of magnetic, gravity, and radiometric survey results, which led to the identification of several uranium anomaly zones, most of which are km-scale. Previous work on the property indicates significant uranium grades (up to 38% U, 0.10% U over 1 m; Clark and Wares, 2004).

Torngat Orogen and Southeast Churchill Province (core zone)

GEOLOGICAL OVERVIEW

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 (Figure 1D-1). This orogen is divided into lithotectonic domains and complexes separated by ductile shear zones (*e.g.*, the Abloviak deformation zone, Figure 1D-1).

Located in the Southeastern Churchill Province, the Trough hinterland and the Torngat foreland were called the "core zone" by James *et al.* (1996). The core zone is composed largely 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 (Figure 1D-1; Wardle *et al.*, 2002).

DIAMOND

In 2005, **Diamond Discoveries International Corp.** conducted a multiphase field campaign on its Torngat diamond project. Three boreholes totalling 500 m were drilled to test a kimberlitic body discovered in 2004 (project 14, Figure 1D-1). Results of the 2005 campaign are still pending.

Ungava Orogen

GEOLOGICAL OVERVIEW

The Paleoproterozoic Ungava Orogen (Ungava Trough or Cape Smith Belt) consists of a volcano-sedimentary belt that stretches over some 370 km along an ENE-WSW axis (St-Onge and Lucas, 1990; Figure 1D-2). 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 *s.s.*, c) the Paleoproterozoic Narsajuaq Terrane, and d) the parautochthonous Archean basement (Lamothe, 1994). The Ungava Orogen comprises seven tectonostratigraphic units that form the Southern and Northern lithotectonic domains, separated by the Bergeron fault. The Southern Domain is composed of three groups: a) the Lamarche Group (sedimentary assemblage intruded by gabbro sills), b) the Povungnituk Group (tholeiitic basalts intercalated with detrital sediments), and c) the Chukotat Group (komatiitic to tholeiitic basalts) thrust onto the Povungnituk. The Northern Domain consists of the Chassé Formation (detrital unit) and of four groups: a) the Watts Group (sedimentary and metavolcanic rocks), b) the Parent Group (tholeiitic basalts and tuffs), c) the Spartan Group (psammites, pelites, semipelites, sandstones,

felsic tuffs, and mudstones), and d) the Perrault Group (wackes, conglomerates, sandstones, and mudstones).

MAGMATIC NI-CU-CO-PGE DEPOSITS

Since 1998, the **Société minière Raglan du Québec**, a wholly-owned subsidiary of **Falconbridge Ltd**, operates an underground and open pit mine, extracting ore from several Ni-Cu-PGE deposits in the Raglan mining camp (project 17, Figure 1D-2). The mining camp comprises a series of 19 massive sulphide lenses (including the Katinniq deposit). **Falconbridge Ltd** uncovered a new zone, Zone 5-8, where a 44.65-m section from Lens 8H yielded assays of 3% Ni and 0.94% Cu. This new zone, located 5 km east of the Katinniq mill (project 18, Figure 1D-2), represents an eastward extension of the Raglan mining camp.

Since 2002, **Canadian Royalties Inc.** has been jumping from one discovery to the next and has stepped up its exploration efforts for nickel, copper, and platinum group elements (PGE) in the Ungava Orogen. Many of its showings and deposits have been drill-tested. Mineral resource estimates have been calculated for a few deposits, namely the Mesamax deposit (project 19, Figure 1D-2), where indicated resources stand at 1.848 Mt grading 1.9% Ni, 2.3% Cu, and 5.0 g/t PGE, and the Mequillon deposit where indicated resources are estimated at 4.185 Mt at 0.6% Ni, 0.9% Cu, and 3.3 g/t PGE (project 20, Figure 1D-2). A drillhole testing the latter deposit (MNQ-05-105) intersected 57.7 m grading 1.02% Ni, 1.32% Cu, 0.1 g/t Au, and 4.4 g/t PGE. The Tootoo zone discovered in 2003 was also drill-tested; a 9.8-m intercept yielded assays of 3.2% Ni, 2.91% Cu, 0.21 g/t Au, and 4.32 g/t PGE (project 21, Figure 1D-2). In December, **Canadian Royalties Inc.** (project 21, Figure 1D-2) announced the discovery of a new mineralized zone located 200 m west of the Tootoo showing. A 19-m section in the Tootoo West zone yielded grades of 1.10% Ni, 1.06% Cu, and 6.51 g/t Pt+Pd+Au (drillhole TT-05-58). This zone also contains a higher-grade interval of 2.88 m grading 26.75 g/t Pd, 4.27 g/t Pt, 2.88% Ni, and 2.91% Cu. In September, the company announced another discovery on the Ivakkak zone (project 22, Figure 1D-2). This Ni-Cu-PGE zone, located about 23 km west of the Mequillon deposit and 50 km west of the Mesamax deposit, is associated with Raglan-type ultramafic rocks. Holes drilled by the company intersected massive to disseminated sulphides. Core samples from drillhole IV-05-01 yielded average grades of 2.34% Ni, 3.25% Cu, 0.10% Co, 0.5 g/t Au, 1.6 g/t Pt, and 6.2 g/t Pd over 12 m. At the Expo deposit (project 23, Figure 1D-2), **Canadian Royalties Inc.** uncovered several new zones (Northeast Area, Eastern Limit, Main Body, and New South zones, project 23, Figure 1D-2), where preliminary results indicate grades reaching 2.96% Ni, 1.96% Cu, 4.14 g/t Pt, and 4.48 g/t Pd. Indicated resources are estimated (based on 2004 drill data) at 4.45 Mt grading 0.8% Ni, 0.8% Cu, and 1.8 g/t PGE, with inferred resources of 645,000 tonnes at 1.8% Ni, 1.5% Cu, and 3.2 g/t PGE. According to the company, total resources for deposits on the Raglan South Nickel project now stand at more than 10 Mt. **Goldbrook Ventures Inc.** and **Anglo American Exploration (Canada) Ltd** discovered two new Ni-Cu zones on the Bélanger property, namely the Pad1/R2 zone and the Timtu zone (project 24, Figure 1D-2). Drillcore samples from the Pad1 zone yielded grades of 0.85% Ni, 1.49% Cu, and 1.28 g/t Pt+Pd over 24.73 m (drillhole BEL05-005). Nickel grades are higher in the Timtu zone, where an 8.65-m interval yielded grades of 1.01% Ni, 0.63% Cu, and 2.38 g/t Pt+Pd (drillhole BEL05-003). Joint venture partners **Anglo American Exploration (Canada) Ltd** and **Knight Resources Ltd** conducted an important exploration campaign on the West Raglan property, which namely included 29 drillholes totalling 4,771 m. Drillcore samples yielded interesting assays over several different intersections, including two in the Greater Frontier area (project 25, Figure 1D-2). A 12.9-m section yielded grades of 0.67% Ni, 0.39% Cu, and 0.58 g/t PGE (drillhole WR-05-98). In another drillhole (WR-05-100), a 7.80-m section graded 2.16% Ni, 0.68% Cu, and 1.53 g/t PGE.

Opportunities for Exploration

Clark and Wares (2004) compiled more than 336 mineral occurrences in the New Québec Orogen. We invite the reader to consult this synthesis, which contains a comprehensive overview of the main ore deposit types occurring in the New Québec Orogen. According to the authors, the most promising uranium occurrences associated with mudstones and siltites, are related to the thickest zones in argillaceous sequences, which constitutes a good ore guide. Sandstones encountered near lakes Otelnuc and du Portage are highly prospective, and the uraniferous potential of the Chioak Formation, in the northern part of the Trough (Bérard zone; Clark and Wares, 2004), is also interesting. The Lac Retty and Lac Gerido areas are known to host massive and disseminated sulphide deposits in mafic to ultramafic sills (Clark, 1994). Although known Cu-Ni occurrences in these areas are low-grade, additional lenses may be discovered through additional exploration. Therefore, these represent excellent target areas to discover new magmatic Cu-Ni-PGE deposits. According to Clark (personal communication), the northernmost part of the Labrador Trough (NTS 25D/01, ex.: Qarqasiaq zone where grades reach 6.5% Ni and 2.28 g/t PGE) offers a strong potential for Cu-Ni mineralization given the abundance of high-magnesium rocks (picrites) and strong similarities with the Cape Smith belt (relative proximity of known deposits in the Cape Smith belt, presence of magnesian lavas and metal-rich sulphides).

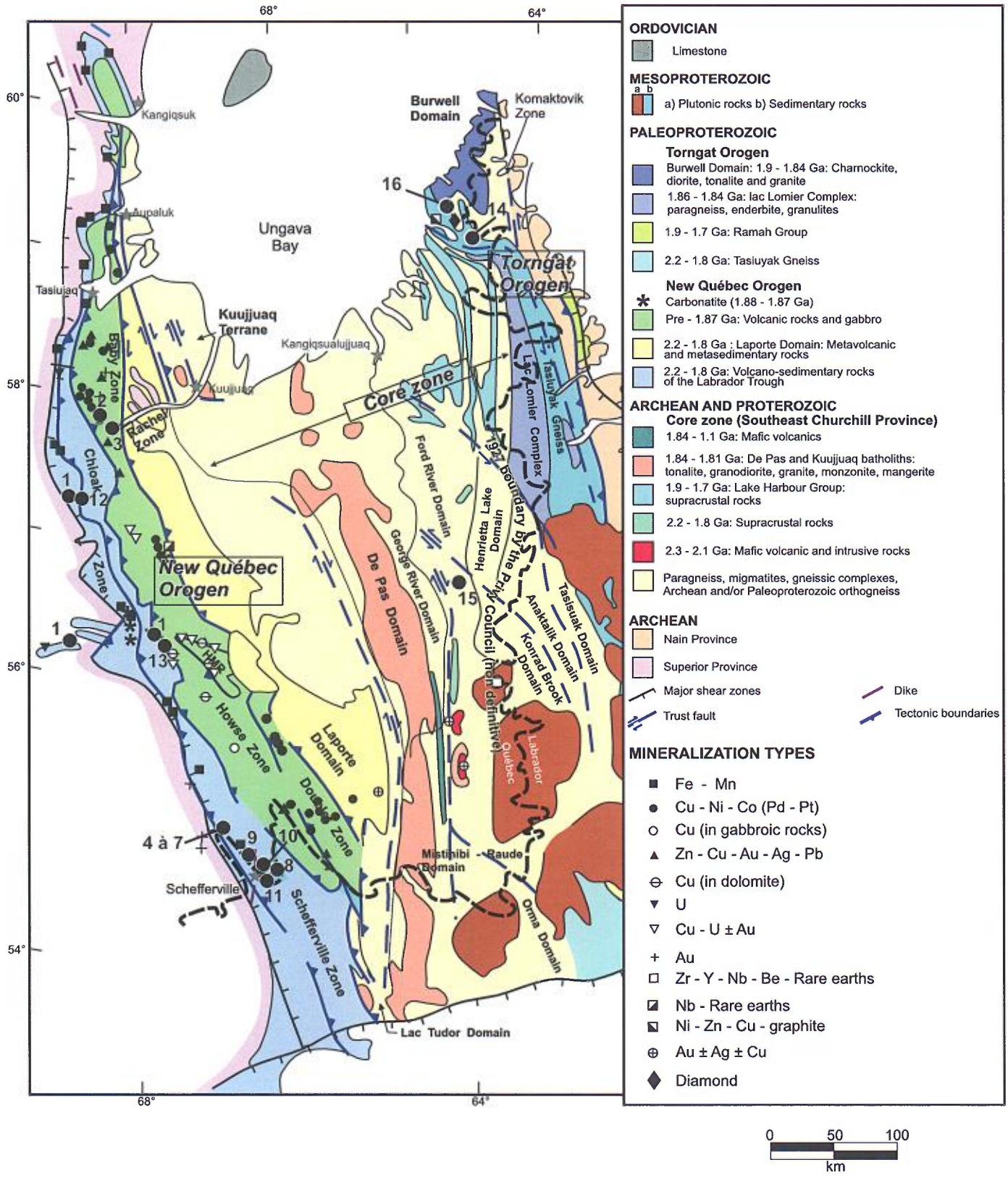


Figure 1D-1. Mineral exploration projects in New Québec and the Torgat orogen, the core zone and the Ungava Orogen for 2005. Modified from Wardle *et al.*, 1990 and 2000.

1D

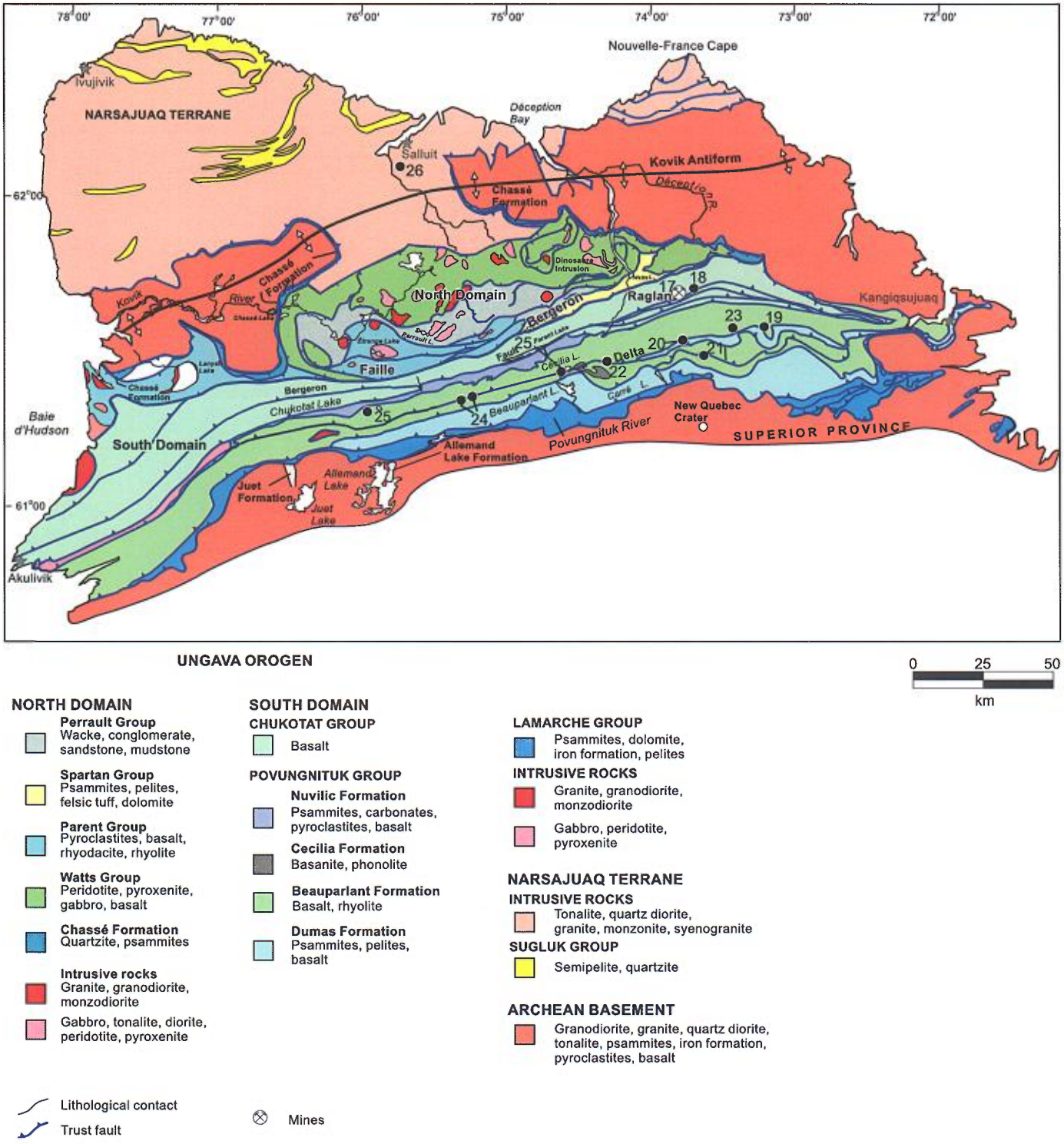


Figure 1D-2. Exploration projects in the Ungava Orogen for 2005. Modified from Lamothe (1996).

TABLE 1D-1 - Mineral exploration projects in New Quebec, Torngat Orogens, core zone and Ungava Orogen for 2005.

Nos.	NTS	COMPANIES / PROSPECTORS	PROJECTS	SUBSTANCES	WORKS [1]
New Québec Orogen, figure 1D-1					
1	24 C/04, 24 C/08, 24 F/04	Waseco Resources Inc.	Uranium Properties	U	GpGr, GpMa, GpRa
2	24 F/13, 14	Fonds d'Exploration Minière du Nunavik	Projet Willbob	Au	Pr, S
3	24 F/13, 14	Fonds d'Exploration Minière du Nunavik	Projet Hélico	-	Pr, S
4	23 O/03	New Millenuim Capital Corp.	Goodwood	Fe	G, S
5	23 O/03	New Millenuim Capital Corp.	Keough Lake	Fe	G, S
6	23 O/03	New Millenuim Capital Corp.	Lac Thérèse	Fe	G, S
7	23 O/03	New Millenuim Capital Corp.	Harris Lake	Fe	G, S
8	23 J/15	New Millenuim Capital Corp.	Knob Lake	Fe	G, S
9	23 J/14	New Millenuim Capital Corp.	Barney	Fe	G, S
10	23 J/15	New Millenuim Capital Corp.	Ferriman	Fe	G, S
11	23 J/10, 15	New Millenuim Capital Corp.	Malcolm	Fe	G, S
12	24 F/04, 05	Uranor Inc.	Trimac	U	Gs(r), Pr
13	24 C/07	Uranor Inc.	Minowean	U	GpRa(S), Gs(r), T
Core zone and Torngat Orogen, figure 1D-1					
14	24 P/07	Diamond Discoveries International Corp.	Torngat	Diamond	D(3:500), G, GpMa, Pr, S
15	24 A/15	Inco Ltd	Terriault	Ni	Pr, S
16	24 P	Uranor Inc.	Cage	U	Pr, S
Ungava Orogen, figure 1D-2					
17	35 H/11, 12	Société Minière Raglan du Québec / Falconbridge Ltd	Raglan	Cu-Ni-Co	D(244:73357), G, GpEm(A;G), Pr, S
18	35 F, G, H	Falconbridge Ltd	Zone 5 - 8	Ni-Cu-PGE	D(?:?), G, S
19	35 H/11	Canadian Royalties Inc.	Mesamax	Ni-Cu-PGE	D(40:??), Re
20	35 H/11, 12	Canadian Royalties Inc. / Ungava Minerals Corporation	Mequillon	Ni-Cu-PGE	D(75:?), G, GpMa, Pr, Re, S
21	35 H/11, 12 35 H/11, 12 35 H/11, 12	Canadian Royalties Inc. Canadian Royalties Inc. Canadian Royalties Inc.	Tootoo Zone - Zone West - Zone principale	Ni-Cu-Pd-Pt Ni-Cu-Pd-Pt Ni-Cu-Pd-Pt	D(11:?)
22	35 G/08	Canadian Royalties Inc. / Montoro Resources Inc.	South Trend Prospect (zone Ivakkak)	Cu-Ni-PGE	D(?:3839), G, GpMa, GpEm(G), Pr
23	35 H/11 35 H/11 35 H/11 35 H/11 35 H/11	Canadian Royalties Inc. Canadian Royalties Inc. Canadian Royalties Inc. Canadian Royalties Inc. Canadian Royalties Inc.	Gîte Expo - North est area - Eastern Limit - Main Body - New South Zone	Ni-Cu-PGE Ni-Cu-PGE Ni-Cu-PGE Ni-Cu-PGE Ni-Cu-PGE	D(32:6200), S
24	35 G/06	Goldbrook Ventures Inc. / Anglo American Exploration (Canada) Ltd	Bélanger (Pad 1/R2; Timtu)	Ni-Cu-PGE	D(18:2700), G, Gs(sl), Gs(t), GpEm(B;G), GpMa, Pr

TABLE 1D-1 - Mineral exploration projects in New Quebec, Torngat Orogens, core zone and Ungava Orogen for 2005.

Nos.	NTS	COMPANIES / PROSPECTORS	PROJECTS	SUBSTANCES	WORKS [1]
25	35 G/05, 06, 35 F/08	Anglo American Exploration (Canada) Ltd / Knight Resources Ltd	West Raglan (Greater Frontier)	Ni-Cu-PGE	D(29:4771), G, Pr, S
26	35 J/04	Fonds d'Exploration Minière du Nunavik	Projet 3-granites	Au-Cu	Pr, S

1 = See abbreviation list in appendix II.

Grenville Province

Serge Perreault
Abdelali Moukhsil

Introduction

The Grenville Province extends for more than 2,000 km along the north shore of the St. Lawrence River and ranges from 300 to 600 km wide. It forms the southeastern part of the Canadian Shield, from Labrador (northeast) to the Great Lakes (southwest). The Grenville Province is divided into three major lithotectonic elements: the Parautochthonous Belt, the Allochthonous Monocyclic Belt, and the Allochthonous Polycyclic Belt (Rivers *et al.*, 1989). Archean rocks of the Superior Province and Paleoproterozoic rocks of the Otish basin and New Québec Orogen are separated from the Parautochthonous Belt by the Grenville Front (Figure 1E-1), a major and complex structure oriented northeast-southwest. The Front is characterized by a northwest-verging thrust movement and by late strike-slip movements (Hocq, 1994).

The Allochthonous Monocyclic Belt comprises allochthonous terrains that underwent a single orogenic cycle. In the western part of the Grenville, the Allochthonous Monocyclic Belt is composed of the Morin and Mont-Laurier terranes, and in the eastern part, of the Wakeham terrane. These terranes consist mainly of supracrustal rocks intruded by mafic and ultramafic dykes and sills, anorthositic suites (Morin Complex), and granitoids.

In the immediate vicinity of Sept-Îles, Grenvillian rocks are intruded by the Eocambrian (565 Ma) Sept-Îles Layered Igneous Complex. Farther east, in the Baie des Moutons area, an Eocambrian syenite complex intrudes Grenvillian bedrock.

In the following two sections, the most significant exploration projects undertaken in the Grenville Province in 2005 will be described according to the type of ore deposit under investigation. The first section deals with the western part of the Grenville Province (which includes the Outaouais, Laurentides, Lanaudière, Mauricie, Portneuf, Québec, Charlevoix, and Saguenay–Lac-Saint-Jean regions), whereas the second focuses on the eastern Grenville (the entire Côte-Nord region).

Western Grenville Province

In 2005, **Géologie Québec** released during the *Québec Exploration 2005* convention a second edition of the preliminary map of the northern part of the Central Metasedimentary Belt of the Grenville Province (Nantel, unpublished). The description, grades and genetic model for twenty or so copper, copper-gold-silver, and copper-silver-tungsten-molybdenum showings occurring in this part of the belt were also on display (Nantel and Perreault, 2005). **Géologie Québec** continued its work launched in 2003 along the boundary between the Abitibi Subprovince and the Parautochthonous Belt of the Grenville Province. Efforts focussed on establishing stratigraphic correlations between the Parautochthonous Belt of the Grenville Province and the Archean Abitibi Subprovince (Bandyayera *et al.*, 2005) as well as structural and metamorphic interpretations across the Grenville Front, in order to build a common-earth 3D model for the southern part of the Chibougamau mining camp (Roy *et al.*, 2005). **Géologie Québec** also completed an assessment of the sillimanite and muscovite potential in the Mont-Laurier area (Togola and Sharma, 2005) and took part in a study on Ni-Cu-PGE showings in the Portneuf-Mauricie Domain, conducted at the **Université Laval** (Sappin *et al.*, 2005).

MAGMATIC NI-CU (CO-PGE) DEPOSITS

The western Grenville Province contains a number of anorthositic massifs as well as several generations of mafic dykes, plutons and complexes, with an excellent potential for magmatic Ni-Cu (Co-PGE) deposits. The most prospective areas appear to be associated with major regional structures that serve as terrane boundaries and that transect or border anorthositic complexes. Significant mineral occurrences are also associated with peridotitic bodies intruding small anorthositic complexes, or mineralized pyroxenite dykes injected into peridotite stocks or late-tectonic mafic and ultramafic intrusions that cut metamorphosed supracrustal sequences (Hébert, 1997; Clark and Hébert, 1998a, 1998b).

In the Lac Renzy area, a copper-nickel deposit was briefly mined by open pit from 1969 to 1972 (Renzy Lake mine; nearly 718,000 tonnes at 0.7% Ni and 0.7% Cu were extracted). The Vulcain property, which namely contains this deposit, is underlain by rocks of the Renzy Terrane, which forms an allochthonous sheet overlying the Parautochthonous Belt (Dozois Terrane) in the western Grenville Province (Martignole *et al.*, 2000). The Renzy Lake deposit is hosted in a tabular ultramafic body, conformable with surrounding paragneisses (Giguère *et al.*, 2005; Sharma *et al.*, 1992; Johnson, 1972). Several bands of ultramafic and mafic rocks, similar or greater in size to the body hosting the Renzy Lake deposit, are reported on the Vulcain property and elsewhere in the area (ex.: Lac Flora igneous Complex).

In March and April 2005, **Matamec Explorations Inc.** (project 4, Figure 1E-1) released encouraging results from exploration drillholes on the Vulcain property. A heliborne geophysical survey had previously detected an electromagnetic (EM) anomaly, 700 m long by 100 m wide, covering the former Renzy Lake minesite. The magmatic nickel-copper mineralization consists of magmatic breccias with a sulphide matrix, massive sulphide veins and disseminated sulphides in an ultramafic host rock. The best results released by the company come from six drillholes testing the southern pit at the Renzy Lake mine, with grades on the order of 1.93% Ni, 4.09% Cu, and 0.13% Co over 2.96 m (hole RZ-05-10), and 1.25% Ni, 1.77% Cu, and 0.09% Co over 10.80 m (hole RZ-05-11). Note that grades of 0.03 to 0.07 g/t Pt and of 0.035 to 0.17 g/t Pd

were reported in two drillholes; the highest Pd grades are associated with copper-rich zones. The company drilled three holes in the northward extension of the open pit. The best grades from the latter are: 1.01% Ni, 1.24% Cu, and 0.07% Co over 14.7 m (hole RZ-05-14), and 1.61% Ni, 0.86% Cu, and 0.12% Co over 5 m (hole RZ-05-19). In order to determine the extent of the mineralization beyond the limits of the former mine, the company completed ten drillholes in the northern part of the main EM anomaly. The best grades obtained are on the order of 0.42% Ni, 0.71% Cu, and 0.02% Co over 10.35 m, including 3 m grading 1.02% Ni, 1.58% Cu, and 0.05% Co (hole RZ-05-05), and 2.12% Ni, 1.68% Cu, and 0.145% Co over 4.90 m (hole RZ-05-07).

SKARN COPPER DEPOSIT

The Ferme-Neuve–Sainte-Anne-du-Lac area hosts several copper showings. Mapping by Géologie Québec and exploration by prospectors and companies in this area as well as to the north of Sainte-Anne-du-Lac (NTS 31J/14, 31O/03, and 31O/06) has revealed the copper potential associated with calc-silicate and supracrustal rocks of the Central Metasedimentary Belt of the Grenville Province. On the Cran Bornite property (**Quinto Technology Inc.** and **P. Boudrias**, project 15, Figure 1E-1), located west of the village of Ferme-Neuve near Mont-Laurier, copper mineralization occurs as massive to semi-massive sulphide lenses (pyrrhotite + chalcopyrite ± bornite) from 10 cm to 1 m in size. Copper mineralization (chalcopyrite) is also found in 1 to 10-cm-thick quartz-plagioclase veins emplaced in diopside-rich calc-silicate rocks. Disseminated copper mineralization was also observed in the calc-silicate rocks (diopsite + plagioclase + quartz + amphibole ± scapolite). The latter form layers from 1 to 10 m thick, within a supracrustal sequence dominated by biotite paragneiss, quartzite, and calcitic marble. On a regional scale, deformed to undeformed intrusions of gabbro, tonalite, granite (*s.l.*), and pegmatite cross-cut the supracrustal rocks. The best results reported by **Quinto Technology Inc.** come from channel samples in trench 3. The company reported average grades of 2.22% Cu over 6.45 m, including 2.57% Cu over 5.30 m. It also reported grades of 7.2% to 9.92% Cu, 1.84 g/t Au, and 5 g/t Ag from two grab samples. Channel samples collected in trenches 1, 2 and 4 yielded average grades below 0.5% Cu. However, a grade of 1.03% Cu over 5.3 m was reported from trench 4.

COPPER DEPOSITS ASSOCIATED WITH ALKALINE PLUTONIC ROCKS

The Lesueur alkaline Suite is composed of monzonite, quartz monzonite, monzodiorite, and alkali granite. These rocks form a km-scale intrusion and dykes from 10 cm to 1 m thick, occurring in the vicinity of lakes Lesueur and Huard, in the northwestern part of NTS sheet 31O/06. Copper occurrences associated with these rocks are reported near lakes Lesueur and Huard (Nantel *et al.*, 2004). The copper mineralization consists of disseminated chalcopyrite in monzonitic and monzodioritic facies, as well as mm-scale to cm-scale pockets associated with fractures cross-cutting the same rock types. In the latter case, the copper mineralization is associated with alteration minerals and is composed of chalcopyrite, bornite, and minor digenite (Nantel *et al.*, 2004). In the Lac Boisvert area (31O/06), located a few kilometres east of Lac Lesueur, prospector **M. Bélisle** (project 11, Figure 1E-1) continued work undertaken in 2004 with the discovery of a mineralized showing, where grab samples yielded assays up to 4.5 g/t Au, 4% Cu, and 40 g/t Ag.

PEGMATITE-HOSTED URANIUM DEPOSITS

Granitic pegmatites associated with supracrustal sequences of the Central Metasedimentary Belt in the western Grenville Province were the focus of mineral exploration and metallogenic studies between 1955 and 1980, and are looked over once again for their uranium potential (Masse, 1974; Kish, 1975; Kish and Bourque, 1982; Harvey, 1983; Lapointe *et al.*, 1993). These uraniferous pegmatites, often whitish, commonly occur along the interface between carbonate rocks and pelitic and arenaceous rocks in metasedimentary sequences, especially near ductile fault zones. The uranium mineralization consists of uraniferous minerals disseminated in the pegmatite and locally in surrounding country rocks (calc-silicate rocks, quartzite, marble, etc.). The mineralization is essentially composed of uraninite, uranothorite, and thorite; uranium is also present in accessory minerals such as betafite, zircon, allanite, titanite, monazite, and apatite. Uranium grades are widely variable within a single pegmatite dyke or vein and even between different samples from a single outcrop, ranging from a few tens to several thousand ppm U_3O_8. These uranium deposits and showings are frequently compared to ore deposits such as Rössing, Namibia (125,000 tonnes at 400 ppm U_3O_8) and in Madawaska, Ontario (total production: 5 Mt at 0.1% U_3O_8 or 4.3 tonnes U_3O_8, from 1952 to 1982).

In the Grand-Remous area, **Starfire Minerals Inc.** (project 4, Figure 1E-1) conducted during the summer 2005 an important drill campaign and a bulk-sampling program on several occurrences within the Capri property. Results released by the company show a wide range of uranium grades in pegmatites and in calc-silicate rocks. U/Th ratios are also highly variable; certain areas are characterized by much higher thorium grades relative to uranium (ex.: zone 2). The best drill results released by the company include: 178 ppm U_3O_8 over 9.4 m (drillhole Z4-05 DDH 01 between 66.4 and 75.8 m), 205 ppm U_3O_8 over 7.6 m (drillhole Z4-05 DDH 04 between 10 and 17.6 m), 187 ppm U_3O_8 over 16.5 m (drillhole Z4-05 DDH 06 between 57.3 and 73 m), and 219 ppm U_3O_8 over 5.5 m (drillhole Ram05 DDH 05 between 31.5 and 37 m). Assays up to 2200 ppm were obtained over individual intervals of less than 30 cm. Bulk samples of 20 kg each yielded grades reaching 1100 ppm U_3O_8, and a surface sample from zone 4 graded 9700 ppm U_3O_8.

In the Sainte-Anne-du-Lac area northeast of Mont-Laurier, **Nova Uranium Corporation** (project 17, Figure 1E-1) conducted an extensive airborne radiometric survey followed by a ground radiometric survey as well as prospecting and mapping

on the Nova showing. The property hosts the Tom Dick, Lac de la Hache, Bear, and Nova showings and many other occurrences. Assay results from grab samples collected in the Nova "A" zone range from 30 to 4300 ppm U_3O_8; 10 samples have grades above 450 ppm, and only 5 samples grade above 910 ppm U_3O_8. In the "B" zone, the company collected 67 samples, namely 36 channel samples and 31 grab samples. Assay results range from 25 to 2900 ppm U_3O_8; of these, 32 samples show grades above 450 ppm, and 18 grade above 910 ppm.

Eastern Grenville Province

In 2005, exploration was focussed on the search for iron, uranium, copper-nickel, and industrial minerals (graphite, titanium).

MAGMATIC NI-CU (CO-PGE) DEPOSITS

Exploration Esbec Inc. discovered a new Ni-Cu showing, B-100 (or Lac Dissimieux), south-southwest of the La Blache mafic plutonic Suite (project 23, Figure 1E-1). This suite is cored by anorthosite, leucotroctolite, and leuconorite, and is bordered by gabbronorite, leuconorite, and local peridotitic and pyroxenitic facies in contact with metasedimentary rocks (Gobeil *et al.*, 2002). Exploration carried out on the B-100 showing by the company consists of stripping, blasting, and local sampling. The disseminated to massive sulphide mineralization is composed of pyrrhotite, chalcopyrite, and minor pyrite and is hosted in gabbroic and pyroxenitic facies. Assay results from grab samples reach 1.40% Ni and 0.12% Cu. **Manicouagan Minerals Inc.** is exploring within the confines of the Manicouagan meteorite impact structure, hoping to discover Sudbury-type Ni-Cu deposits. In 2005, the company completed 16 drillholes totalling 7,354 m. A deep drillhole (MAN 05-02) reached 1607 m depth. Minor amounts of sulphides (chalcopyrite) are reported in this drillhole. These holes were drilled in an attempt to explain the strong aeromagnetic anomaly detected on the property (project 24, Figure 1E-1). North-northwest of Baie-Comeau, **Quinto Technology Inc.** acquired (optioned from **Exploration Esbec Inc.**) the Rivière Vallant Ni-Cu showing, formerly referred to as B-50 (project 25, Figure 1E-1). Mineralization consists of disseminated (10%) and net-textured sulphides. Massive sulphide veins from 1 mm to 10 cm wide are also observed in the field as well as a zone with mineralized blocks. In this zone, country rocks consist of magmatic breccias with mafic to ultramafic clasts composed of gabbronorite, olivine pyroxenite, and peridotite (deposit file). Assay results from drillholes completed in 2005 by **Quinto Technology Inc.** (7 drillholes totalling 350 m) yielded grades up to 2.88% Ni and 0.86% Cu.

IRON FORMATIONS

The Fermont area is characterized by the presence of abundant iron ore deposits, among which the Mont-Wright deposit, mined since 1974 by the **Québec Cartier Mining Company** (QCMC). Reserves at the Mont-Wright iron ore mine stand at 1.5 billion tonnes at 31.40% Fe; the iron ore, grading up to 37% Fe, reaches 66% Fe after beneficiation. Similar deposits are mined in Labrador by mining companies **IOC** and **Wabush Mines**. These ore deposits are part of the Gagnon Group and represent the Grenvillian metamorphic equivalents of iron formations in the Labrador Trough. Extracted minerals include hematite and specular hematite. Renewed interest in iron ore has pushed iron near the top of the list of targeted commodities in the Côte-Nord region as well as elsewhere in Québec and throughout the world. Exploration companies acquired several known deposits with historical resource and reserve estimates. These estimates do not however meet standards required by National Instrument 43-101.

The Peppler Lake deposit (project 26, Figure 1E-1), held by **Quinto Technology Inc.**, is located about 15 km west of **QCMC**'s Fire Lake iron ore deposit (**QCMC** is considering mining this ore deposit in 2007; proven and probable reserves were estimated in 1985 at 341 Mt at 33.35% Fe), and about 50 km south-southwest of the Mont-Wright iron ore mine in the Fermont area. Mineralization at the Peppler Lake deposit consists of massive and disseminated specular hematite and magnetite, within a Lake Superior-type iron formation. Historical mineral reserves (probable) are estimated at 274 Mt at 28.5% Fe (1979, work by QCM). The company conducted some exploration on the deposit during the summer 2005. A pre-feasibility or opportunity study, which includes a validation of the potential, metallurgical testing, an evaluation of infrastructure needs and a cost estimate for an annual production capacity of about 10 Mt of iron pellets, is currently underway. The company concluded an agreement with **Balli Steel** for an eventual mining operation in 2010.

The Bloom Lake deposit (project 27, Figure 1E-1), held by **Consolidated Thompson-Lundmark Gold Mines Ltd**, is located about 9 km north-northeast of the Mont-Wright iron ore mine. The mineralization, identical to that at Peppler Lake, consists of layers of massive hematite and magnetite and layers of disseminated iron oxides in a Lake Superior-type iron formation. The company is conducting a feasibility study (including a metallurgical study and validation of historical data). The Bloom Lake deposit is composed of several zones with grade and tonnage estimates dating back to 1959. The company reported in 2005 that proven and probable reserves are on the order of 638 Mt grading 29.76% Fe.

MAGMATIC MASSIVE ILMENITE DEPOSITS

QIT-Fer et Titane Inc., a wholly-owned subsidiary of the Anglo-Australian **Rio Tinto** Group, operates since 1950 an open pit mine at the Lac Tio ilmenite deposit (Figure 1E-1) near Havre-Saint-Pierre. It also operates a metallurgical complex in Sorel-Tracy, where the ore is processed to produce slag of titanium dioxide (80% and 95.5% TiO_2), pig iron, and high-quality steel. The Lac Tio ore deposit is the second largest in the world, with proven reserves of 75 Mt at an average grade of 86.9% combined iron and titanium

oxide (34.2% TiO_2 + 27.5% FeO + 25.2% Fe_2O_3; 4.3% SiO_2, 3.5% Al_2O_3, 3.1% MgO, 0.9% CaO, 0.1% Cr_2O_3, 0.41% V_2O_5). In 2005, **Rio Tinto Fer et Titane Inc.** completed a few drillholes (5) totalling 475 m on the Grader West project, located in the southeastern part of the Havre-Saint-Pierre anorthositic Suite (project 28, Figure 1E-1). Northwest of Forestville on the Lac Brûlé property, **Quinto Technology Inc.** (project 29, Figure 1E-1) completed a series of drillholes that intersected several layers of massive hemo-ilmenite. The property is underlain by rocks of the Labrieville anorthositic Suite. **Quinto Technology Inc.** completed a drilling and sampling program, and namely released the following drill results: from DDH-05-02: 31.80% TiO_2, 59.45% Fe_2O_3, and 1.77% MgO over 16.16 m; from DDH-05-03: 31.94% TiO_2, 61.99% Fe_2O_3, and 1.82% MgO over 15.84 m, and from DDH-05-07: 32.30% TiO_2, 62.10% Fe_2O_3, and 1.90% MgO over 2.17 m. Historical probable reserves (pre-NI 43-101) are estimated at 5.84 Mt grading 42% Fe and 35% TiO_2 for zones A and B.

MAGMATIC URANIUM DEPOSITS

Since 2003, uranium is a popular exploration target throughout Québec. Like iron, a few junior companies are currently re-evaluating showings and deposits that were discovered and explored since the 1960s. Joint venture partners **Sheridan Platinum Group Ltd** and **Fancamp Exploration Ltd** acquired an extensive land package in the vicinity of Lac Turgeon and Lac Costebelle in the municipality of Baie-Johan-Beetz (projects 30 and 31, Figure 1E-1). In the Lac Turgeon area, uranium mineralization is interstitial, in microfractures or in veins, hosted in two-mica granites and pegmatites. The partners conducted a sampling campaign and a ground scintillometer survey; results are pending. The Lacana or Doran deposit (project 32, Figure 1E-1) was optioned during the summer 2005 by **Entourage Mining Ltd**. This deposit contains historical (pre-NI 43-101) possible reserves estimated at about 11 Mt at 0.025% U_3O_8 (212 ppm U). The uranium mineralization is disseminated and in veins, hosted in augen gneisses and white pegmatites. In the Middle North Shore, north of Port-Cartier, prospectors **R. Landry** and **J.C. Rochette discovered** two magmatic uranium showings (project 33, Figure 1E-1). The first showing consists of uranium-thorium mineralization in a quartz-K-feldspar pegmatite vein (alaskite-type) injected in a migmatized paragneiss. A grab sample yielded assay results of 2920 ppm U (0.34% U_3O_8) and 995 ppm Th. X-ray diffraction analyses of a uraniferous mineral sample, carried out by **Géologie Québec** at the COREM laboratory, revealed the presence of three distinct uraniferous minerals. The first (1% by volume) contains mainly uranium, lead, and yttrium. The second (95% by volume) mainly contains uranium, niobium, yttrium, and titanium, whereas the third mineral (1% by volume) is composed of uranium and thorium. The second showing consists of a smoky quartz vein hosted in a pink hematized biotite granite. One sample of smoky quartz yielded a grade of 598 ppm U (0.07% U_3O_8). East of Baie-Johan-Beetz and south of Lac Costebelle (project 34, Figure 1E-1), **Starfire Minerals Inc.** optioned the Cross Structure uranium property, which hosts several known low-grade uranium deposits. The company performed sampling as well as a radiometric survey. Assay results from 17 channel samples yielded grades ranging from 5 to 190 ppm U, and from 0.19 to 0.62 g/t Au.

Opportunities for Exploration

With uranium prices on the rise over the last two years, certain parts of the Grenville Province have become quite attractive for mining companies engaged in uranium exploration. The uraniferous potential of the Gatineau, Litchfield and Kipawa areas is associated with granitic and syenitic intrusions. The potential of the Mont-Laurier area on the other hand, is associated with the formation of the Mont-Laurier sedimentary basin in the Central Metasedimentary Belt, and with the tectonometamorphic remobilization of uranium in granitic pegmatites. It might also be worthwhile to assess the uraniferous potential of the Grenville Province for metasomatic-type deposits associated with late-orogenic albitization, and for vein uranium deposits associated with the emplacement of peraluminous granites along major crustal structures. The Wakeham sedimentary basin and late to post-tectonic granitic to pegmatitic plutons are interesting targets to consider in the Côte-Nord region. The Lac Turgeon pluton (informal unit), dated at 948±23 Ma (Fowler and Doig, 1983), and the La Galissonnière felsic Suite (Madore *et al.*, 1999; Gobeil *et al.*, 2003; map sheet 12L/07) are good examples. Within the Wakeham Terrane and the Natashquan Domain, prospective areas to consider are underlain by bedrock composed of granitic gneiss, granite, pegmatite, and paragneiss, such as in the Lac Costebelle area. The Blanc-Sablon area is also a prospective area for uranium deposits. The bedrock mapped in NTS sheets 12P/11, 12P/12, 12P/13 and 12P/14 represents a potentially fertile area in which to discover uranium and/or thorium showings or deposits. Lake sediment uranium anomalies (>6 ppm) are strongly dominant in these map sheets and are accompanied by anomalies in samarium, scandium, lanthanum, europium, and cerium (Beaumier and Kirouac, 1994). These anomalies coincide with late to post-orogenic granites characterized by strong magnetic signatures (ex.: Fournier and Brador granites). Other anomaly zones are associated with the Lac Wapustagamau fluorite-bearing granite (north of the village of Saint-Augustin) and the Baie-des-Moutons syenite Complex (Perreault and Heman, 2003).

The vast region around Ferme-Neuve, Sainte-Anne-du-Lac and the Lac Lesueur area hosts several copper showings. This part of the Upper Laurentians has a strong potential for skarn copper deposits associated with calc-silicate and supracrustal rocks in this part of the Grenville Province. Selected exploration targets should focus on calc-silicate rocks associated with biotite paragneiss, quartzite and calcitic marble sequences cut by tonalitic to granitic intrusions. Moreover, the copper potential associated with the presence of alkaline plutonic rocks such as those of the Lesueur alkaline Suite should certainly not be neglected.

1E

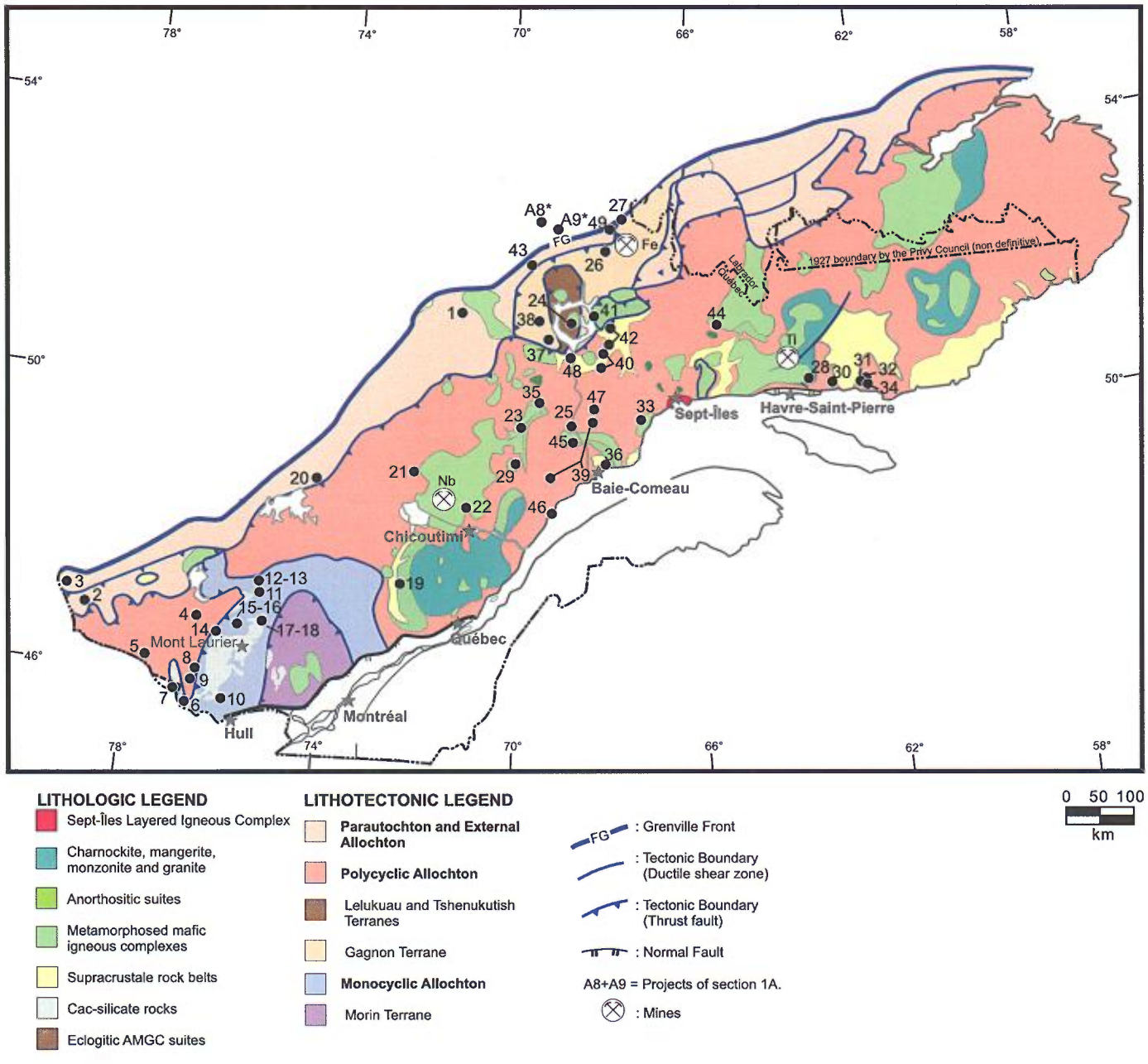


Figure 1E-1. Exploration projects in the Grenville Province for 2005.

TABLE 1E-1 - Exploration projects in the Grenville for 2005 (see figure 1E-1).

Nos.	TOWNSHIPS	NTS	COMPANIES / PROSPECTORS	PROJECTS	SUBSTANCES	WORKS [1]
1	-	21 M, 22 D, 22 F, 22 N, 23 C, 31 O, 31 N	Virginia Gold Mine Inc. / BHP Billiton	Grenville reconnaissance	Cu-Ni-Co-PGE	G, Pr
2	Atwater, Booth, McLachlin, Gaulin, Villedieu	31 L/15	Globex Mining Entreprises Inc.	Hunters Point	U - Au	TE
3	Mazenod	31 M/03	KINBAURI GOLD CORP.	Laniel	PGE-diamond	G, Gs(sl)
4	Hainaut	31 K/15	Matamec Explorations Inc.	Vulcain	Cu-Ni-Co-PGE	D(19:1498), G, TE
5	Esher	31 K/03	S. Lampkin	Esher	Cu-Ni	Pr
6	Litchfield	31 F/10	M. Glabb	-	Cu-Zn	Pr
7	Grand Calumet	31 F/15	Globex Mining Entreprises Inc.	Grand Calumet Uranium Fluorite	U	TE
8	Huddersfield, Clapham	31 F/15	Aldershot Resources Ltd	Pool Group	U	GpEm(A), GpMa(A), GpRa(A)
9	Huddersfield, Pontefract	31 F/15, 31 F/16	Aldershot Resources Ltd	Halliwell Group	U	GpEm(A), GpMa(A), GpRa(A)
10	Wakefield	31 G/12	A. Dunkell	St-Pierre-de-Wakefield - mine Leduc	Li-Gemstone	B, G, Pr
11	-	31 O/06	Ressources Maxima Inc.	Boisvert / Huard	Cu-Mo-Au-U	G, Gs(r), Gs(sl), Pr
12	-	31 O/06	Globex Mining Entreprises Inc.	Lac Huillier	U	TE
13	-	31 O/06	Globex Mining Entreprises Inc.	Lac Fourcet	U	TE
14	Sicotte	31 J/12	Starfire Minerals Inc. / F. Yacoub	Capri	U	D(21:17000), G, GpRa(G), Gs(r), Pr, T
15	Major	31 J/13	Quinto Technology Inc. / P. Boudrias	Cran Bornite	Cu-Ni-Co-Ag	G, Gs(r), Pr, T
16	Major	31 J/13	R. Dumoulin	-	Cu	Pr
17	Pérodeau, Leman, Franchère	31 J/14	Nova Uranium Corporation	Mont-Laurier	U	G, GpMa(A), GpRa(A), GpRa(G), Gs(r), Pr, T
18	Décarie, Perodeau	31 J/14	Ressources Strateco inc.	Mont-Laurier	U	TE
19	Bikerdicke	31 P/09	Société d'exploration minière Vior Inc.	Édouard	Cu-Ni	Pr, TE
20	Huard	32 B/16	H.-L. Tremblay	Lac Bell	Au-Ag-Ni-Cu-Co	Gs(r), Pr
21	Melançon	32 H/01	9141-6883 Québec Inc.	Lac Yenevac	Cu-Ni-Co	G, GpEm(A), GpMa(A), Gs(r), T
22	*Simard*	*22 D/11*	*Cambior Inc.*	*Niobec (BM 663)*	*Nb*	*G*
23	-	22 F/13	Exploration Esbec Inc.	B-100	Cu-Ni-Co-Pt-Pd	Pr, S
24	-	22 N/07	Manicouagan Minerals Inc.	Île René-Levasseur	Cu-Ni	D(16:7354), GpEm(A), GpMa, S
25	-	23 B/05, 06	Quinto Technology Inc./ E.D. Black	Peppler Lake	Fe	G, GpMa

TABLE 1E-1 - Exploration projects in the Grenville for 2005 (see figure 1E-1).

Nos.	TOWNSHIPS	NTS	COMPANIES / PROSPECTORS	PROJECTS	SUBSTANCES	WORKS [1]
26	-	**23 B/14**	**Consolidated Thompson-Lundmark Gold Mines Ltd**	**Lac Bloom**	**Fe**	**FM, Re, S, TM**
27	Parker	12 L/11	QIT-Fer & Titane Inc.	Grader South	Fe-Ti	D(5:475), Gp(A), S
28	-	22 F/05	Quinto Technology Inc.	Lac Brûlé	Fe-Ti	D(?:?), S
29	-	12 L/06, 07	Sheridan Platinum Group Ltd / Fancamp Exploration Ltd	-	U-Th	GpRa, S
30	-	12 L/08	Sheridan Platinum Group Ltd / Fancamp Exploration Ltd	-	U-Th	GpRa(S), S
31	-	12 L/08	Entourage Mining Ltd / F. Yacoub	Lacana (Doran)	U-Th	GpRa, S
32	-	22 G/14	R. Landry / J.C. Rochette	Pilaro	U-Th	GpRa(G), Pr, S, T
33		12 L/08	Starfire Minerals Inc. / F. Yacoub	Gross Structure	U-Au	GpRa(A), S
34	-	22 K/03, 04	Gowest Amalgamated Resources Ltd	Quebec Nickel	Cu-Ni-Pt	D(8:1600), GpEm(G), GpMa
35	-	22 G/05, 22 F/08	Exploration Minière Manicouagan	Franquelin	Ni-Pt-Pd	GpEm(G), Pr, S
36	-	22 N/03	Exploration Minière Manicouagan	Lac en Dentelle	Au	Gs(s), Gs(sl)
37	-	22 N/05	Exploration Minière Manicouagan	Tétépisca	Ni-Cu	GpEm(G), Gs(sl), Pr
38	-	22 F/03, 15, 16	Falconbridge Ltd	Manic	Cu-Au	Pr
39	-	22 K/09, 16	Falconbridge Ltd	Manic	Cu-Au	Pr
40	-	22 N/08	Falconbridge Ltd	Manic	Cu-Au	Pr
41	-	22 O/04, 05	Falconbridge Ltd	Manic	Cu-Au	Pr
42	-	23 C/04	SOQUEM INC.	Mouchalagane	Au-Cu	GpEm, GpMa
43	-	22 P/06	M. Morissette	Lac Vital	Cu-Ni-Au	Pr, S
44	-	22 F/10	Recherche Magnétique Canada	Zec Varin	Fe-Ti	G, S
45	-	22 C/11	Forage Dynamitage Girard Inc.	MG 1	Cu-Ni-Au	GpEm
46	-	22 F/15	Quinto Technology Inc.	Rivière Vallant (B50)	Cu-Ni	D(7:350), S
47	-	22 F/16	Quinto Technology Inc.	Lac Jourdain	Cu-Ni	Pr, S
48	-	22 K/15	Quinto Technology Inc.	Lac Paradis	Cu-Ni	D(?:?), Pr, S
49	Lislois	23 B/11, 14	Québec Cartier Mining Company	Lac Moiré	Fe	D(36:6414)

1 = See the legend of abbreviations and the signification of italic and bold type in the appendix II.

1E

St. Lawrence Platform and Appalachians

Serge Lachance

Introduction

The St. Lawrence Platform and Appalachians include all parts of Québec mostly located south of the St. Lawrence River (Figure 1F-1). The geological setting of this part of Québec, to the south of the Canadian Shield, mainly consists of Paleozoic rocks subdivided into two geological provinces: the St. Lawrence Platform, which overlies the Grenvillian basement along an erosional unconformity, and the Appalachians to the southeast. The boundary between the two provinces is marked by Logan's Line (LL). In Québec, each of these two provinces is subdivided into major tectono-stratigraphic domains. In the St. Lawrence Platform, from northwest to southeast, we find the following Cambrian to Silurian domains: the Autochthonous Domain and the Parautochthonous Domain. The Appalachian Orogen, also from northwest to southeast, is divided into four domains: the Cambrian-Ordovician Humber and Dunnage zones, separated by the Baie Verte-Brompton Line (BVBL), the Silurian-Devonian Gaspé Belt, and the Permo-Carboniferous Magdalen Basin.

This area hosts two mineral collecting operations on outstanding mineralogical sites. Located a few kilometres northeast of Bonsecours in the Estrie region, **Mines Cristal Québec** extracts, since 1990, quartz crystals of all sizes from numerous druses occurring in quartz veins intercalated in the Sutton Schists. In Lemieux Township south of the Parc national de la Gaspésie, **Mine d'Agates du Mont Lyall Inc.** manages a site where collectors can find exceptional agates and geodes, in a rhyolite flow intercalated in the York River Formation (Gaspé Sandstones).

In terms of exploration activities in the St. Lawrence Platform and Appalachians, 20 exploration projects were brought to our attention in 2005, compared to 18 projects in 2004. The total number of metres drilled in 2005 amounted to 3,063, compared to 6,700 m in 2004.

To provide a clearer framework in which to discuss exploration projects, the St. Lawrence Platform and Appalachians were divided into three segments: the southwestern segment, which includes the Montréal and Chaudière-Appalaches regions (10 projects and 417 m drilled), the central segment comprising the Bas-Saint-Laurent region (1 project and 350 m drilled), and the northeastern segment, which includes the Gaspésie and Îles-de-la-Madeleine regions (9 projects and 2,296 m drilled).

Exploration Projects

SOUTHWESTERN SEGMENT (MONTRÉAL AND CHAUDIÈRE-APPALACHES REGIONS)

In a press release dated November 30, 2005, **Niocan Inc.** (project 4, Figure 1F-1) announced it had commissioned Golder and Associates to reassess hydrology studies conducted thus far and to propose a plan of action to address concerns brought up by the Ministère du Développement durable, de l'Environnement et des Parcs du Québec (MDDEP). At the end of 2005, **Niocan Inc.** was still waiting for the MDDEP to issue the certificate of authorization required to continue development work on its project to operate a niobium mine and processing plant in the Oka carbonatite Complex (lower Cretaceous) near Montréal, in the Lac-des-Deux-Montagnes seigniory. The niobium ore deposit contains proven and probable reserves in the S-60 and HWM-2 ore zones estimated at 13.3 Mt grading 0.63% Nb_2O_5.

The St-André property (project 1, Figure 1F-1), held by **H. Solis, G. Gravel, M. Bezeau** and **J. Huet**, is underlain by rocks of the Saint-André carbonatite complex (lower Cretaceous) in Argenteuil Township and the Lac-des-Deux-Montagnes seigniory. This carbonatite complex was identified in the 1960s and at the time, was namely explored (**SOQUEM INC.**, 1969) for its niobium potential. Since 2004, the four partners are investigating the diamond, niobium, rare earth elements, and gold potential of the property. Exploration work carried out to date has revealed new evidence for polymetallic hydrothermal occurrences associated with alkaline intrusions, and has led to the recovery of microdiamonds associated with alkaline breccias in the regolith overlying the carbonatite complex.

The discovery in 2003 of a series of quartz boulders with native gold prompted prospectors **R. Mainville** and **T. Burnham** to pursue their exploration efforts on the Timrod property (project 6, Figure 1F-1) in the Saint-François seigniory. In 2004, a trench was excavated, then in 2005, glacial till samples were collected and processed to recover and examine gold grains. In late December 2005, **R. Mainville** and **T. Burnham** signed an agreement with **Fancamp Exploration Ltd**, whereby the latter may continue exploration on the Timrod property. The well-developed stockwork of quartz veins and veinlets is hosted in an acidic tuff in contact with a graphitic argillite typical of the Beauceville Formation (middle Ordovician). Located directly up-ice of gold placers in Saint-Simon-les-Mines, the Timrod gold showing may represent one of the sources of these placer deposits.

Ressources Tectonic Inc. is focussing on the potential for Cu-Zn volcanogenic massive sulphide (VMS) deposits in mafic volcanic rocks (metabasalts and chlorite-epidote schists) of the Clinton Formation (Silurian) in Clinton (project 2, Figure 1F-1) and Marston (project 5, Figure 1F-1) townships, as well as

in the volcano-sedimentary sequence of the Ascot Complex (lower to middle Ordovician), in Weedon Township (project 9, Figure 1F-1). A detailed magnetometer survey conducted on the Weedon property helped trace the ore-bearing horizon at the former Weedon mine over a strike length of 800 m to the south of the latter.

In a press release dated June 20, 2005, **Lithic Resources Ltd** announced it had signed an agreement to acquire a 100% interest in the Stoke Mountain Cu-Zn-Ag property, located in Stoke, Dudswell, and Westbury townships, about 20 km northeast of Sherbrooke in the Estrie region. The company intends to perform, over a period of 4 years starting in 2006, a wide range of exploration work in the Ascot Complex (lower to middle Ordovician) in order to assess the potential for Cu-Zn-Pb-Au-Ag volcanogenic massive sulphide (VMS) deposits. Drill results from previous work defined two mineralized zones (Phelps Dodge, 1997-1999): the first intercept contained disseminated chalcopyrite and stringers and graded 6.34% Cu and 27.3 ppm Ag over 5.1 m, whereas the second contained 0.35 m of stratiform massive sulphides with barite grading 2.4% Zn, 2.5% Pb, 52.6 g/t Ag, and 850 ppb Au.

The Sainte-Cécile project (project 10, Figure 1F-1) held by **Ressources Appalaches Inc.** includes the Sainte-Cécile and Galloway molybdenum properties, both bordering the Mont Sainte-Cécile and Mont Saint-Sébastien granitic massif (Devonian), north of Lac Mégantic in the Estrie region. Best results from 16 boreholes drilled by Labrador Mining Exploration in 1964 on the Sainte-Cécile property (deposit file 21E10/0015) were 0.06% Mo over 6 m. The Galloway property (deposit file 21E10/1000) hosts a molybdenite showing (1% MoS_2) and a km-scale molybdenum anomaly in stream sediments.

CENTRAL SEGMENT (BAS-SAINT-LAURENT REGION)

On the Sainte-Marguerite property in La Vérendrye and Casupscull townships (project 11, Figure 1F-1), **Puma Exploration Inc.** confirmed in drillhole the presence and continuity, over respective lengths of 35 and 70 m, of two mineralized zones consisting of subhorizontal gold-bearing quartz veins in the Fraser 3 zone. Best results to date on these zones, which remain open along strike, range from 1.6 g/t Au over 0.3 m (F05-11) to 40.8 g/t Au over 0.2 m (F05-08). These lode gold occurrences are hosted in lower Devonian volcano-sedimentary rocks along the southern limb of the Sainte-Florence fault, more specifically in Sainte-Marguerite basalts and mafic tuffs and sedimentary rocks of the Fortin Group.

NORTHEASTERN SEGMENT (GASPÉSIE AND ÎLES-DE-LA-MADELEINE REGIONS)

For the fifth consecutive year, **Ressources Appalaches Inc.** was very active in the Gaspésie region, with four exploration projects. In August 2005, the company signed an agreement with **Scorpio Mining Corp.** to acquire a 51% interest in the Lac Arsenault property (project 20, Figure 1F-1) in Weir and Honorat townships. This property is characterized by the presence of mineralized breccias and at least 5 distinct gold-bearing veins (Baker, Mercereau and Mercereau Extension, Marleau, Line 4W, and Greek). These gold zones were emplaced in Ordovician greywackes and siltstones of the Arseneault Formation (Honorat Group). Since August 2005, **Ressources Appalaches Inc.** has demonstrated, on surface and in drillhole, the continuity of the Baker gold-bearing quartz vein over a strike length of 80 m and to a vertical depth of 90 m (7.4 g/t Au and 74.3 g/t Ag over 0.5 m in drillhole F05-28).

Drillholes completed thus far by **Ressources Appalaches Inc.** on the Mont-de-l'Aigle copper property (project 13, Figure 1F-1) in the northern part of the Lemieux Dome (Lemieux Township) have demonstrated the presence of iron oxide-copper-gold (IOCG)-type mineralization, in veins and breccias with hematite, magnetite, pyrite, chalcopyrite, and quartz, over mineralized thicknesses reaching 60 m and grades on the order of 0.2% Cu. These copper-bearing zones are hosted in subhorizontal sedimentary and volcanic (mafic and felsic) sequences (lower Devonian) of the Upper Gaspé Limestones (Forillon, Shiphead, Indian Cove formations) and the Gaspé Sandstones (York Lake, York River formations). Two other projects headed by **Ressources Appalaches Inc.** focussed on the gold potential of the Robidoux and Saint-Benoît properties (projects 19 and 16, Figure 1F-1).

At the end of 2005, **Threegold Resources Inc.** signed an agreement with prospector V. Arsenault, in order to acquire a 100% interest in the Vital property (project 14, Figure 1F-1) located in the southern part of the Lemieux Dome (Lemieux Township). This subcircular antiformal structure, inferred to be caused by one or more important intrusions, consists of a central part of Silurian-Devonian sandstones, siltstones, and limestones of the Saint-Léon Formation (Chaleurs Group), bordered by sedimentary (mudstones, sandstones, and limestones) and volcanic (basalts, rhyolites, mafic and felsic tuffs) rocks of the lower Devonian Upper Gaspé Limestones and Gaspé Sandstones. A recent metallogenic study released by the Ministère des Ressources naturelles et de la Faune (Pilote, 2005) suggests the possibility of copper deposits at depth, as well as gold deposits along the periphery. These two settings will be the main targets for the 2006 exploration program.

Prospectors **R. Lelièvre** and **M. Boudreau** (project 17, Figure 1F-1) observed, 5 km north of Grande-Rivière in Percé Township, sedimentary redbed copper occurrences (chalcocite, malachite) as well as copper-bearing (chalcocite, malachite, chalcopyrite) quartz veins. These copper showings, mainly hosted in calcareous to non-calcareous and occasionally dolomitic mudrocks of the Pabos Formation (Ordovician), are generally associated with structures trending N60° and N340°. Grab samples yielded grades reaching 1.75% Cu and 7.1 ppm Ag.

Prospectors **R. Lelièvre** and **M. Boudreau** also worked on two other projects, in partnership with the **Fonds régional d'assistance à la prospection minière Gaspésie-Îles-de-**

la-Madeleine (FRAPMGÎM). The Cannes-de-Roches–Barachois property (project 18, Figure 1F-1) near Percé hosts two main showings, namely the Beattie showing (8.75% Pb) and the Cannes-de-Roches showing (5.24% Zn), as well as other types of occurrences: Pb-Zn sedimentary redbeds, semi-massive sulphides (pyrite, sphalerite, galena ± chalcopyrite ± bornite) in carbon-rich, pyrite-rich reducing layers (quartzitic sandstone), and copper (chalcopyrite, malachite, bornite) in felsic volcanic pebbles. On the BBL-32 property (project 12, Figure 1F-1), basic prospecting led to the discovery of a well-developed stockwork of quartz-carbonate-chlorite veins with local chalcopyrite, malachite, and bornite (up to 1.08% Cu).

Opportunities for Exploration

BASE METALS AND PRECIOUS METALS

Over the past two decades, exploration efforts have demonstrated the mineral potential of sedimentary settings in the Appalachians, namely for redbed copper deposits and for Carlin-type gold in limestones. **Ressources Appalaches Inc.** and **SOQUEM INC.** explored the Paleozoic sedimentary basin in the Bas-Saint-Laurent region, more specifically in NTS sheets 22C/02 and 21N/15. Their work on the Transfiguration and Squatec properties, southwest of Rimouski, led to the discovery of stratiform Cu-Ag±Pb±Zn occurrences typical of sedimentary redbed copper deposits. Mineralized zones consist of disseminated chalcopyrite and minor chalcocite, with grades ranging from 0.1 to 15% Cu. On a regional scale, they occur in reducing facies composed of grey and green conglomerates and grey quartzitic sandstones overlying the base of the Silurian Robitaille Formation in the Connecticut Valley-Gaspé Synclinorium.

In north-central Gaspésie, more specifically in Boisbuisson Township west of the Devonian McGerrigle granitic Pluton (NTS 22G/01 and 22H/04), the **FRAPMGÎM** performed exploration work on its property, which includes the minesite of former copper producer **Les Mines Madeleine Ltée**. They confirmed the presence of copper-silver occurrences, also related to sedimentary redbed copper deposits. The mineralized zones, grading up to 4.8% Cu and 31 g/t Ag, are disseminated in green sandstones overlying mafic volcanic and volcaniclastic rocks at the top of the Cambrian volcano-sedimentary sequence of the Des Pics unit in the Québec Supergroup. In this area in 1981, **Les Mines Madeleine Ltée** had estimated, based on drill data, mineral resources at 400,000 tonnes at a grade of 0.25% Cu.

DIVEX, a group of earth scientists united in a research network to diversify mineral exploration in Québec, is taking a closer look at known gold showings in sedimentary settings near the Grand Pabos–Ristigouche fault in the southern Gaspésie region. In studying the geological setting of these occurrences and particularly the Saint-André-de-Restigouche gold-stibnite showing in Ristigouche Township (NTS 22B/02), **DIVEX** has identified several features typical of Carlin-type gold deposits. These results outline the potential for Carlin-type gold deposits in Ordovician and Silurian limestones of the Matapédia Group.

In eastern Gaspésie, more specifically in York, Fortin, Baillargeon, and Galt townships (NTS 22A/09, 10, and 15), the **FRAPMGÎM** completed a study on hydrocarbons and Pb-Zn±Ag occurrences in cherty and dolomitic limestones, dolomites, and dolomitic breccias along the Troisième Lac fault. The study confirms that Pb-Zn occurrences are Mississippi Valley-type (MVT) and that, in this area, lower Devonian carbonate rocks of the Indian Cove Formation in the Upper Gaspé Limestones, as well as those of the York Lake Formation in the overlying Gaspé Sandstones, offer a strong potential for this type of ore deposit.

To date, Paleozoic sedimentary and volcanic assemblages in north-central Gaspésie (NTS 22A/11 to 14, B/09 and 16, G/01, H/04) were explored for copper deposits similar to those formerly mined by **Gaspé Copper** (a division of **Noranda Inc.**) in Murdochville, namely: porphyry-type deposits (Copper Mountain), skarns (zones B and C), marble-hosted replacement massive sulphides (mantos) (zone E), as well as distal polymetallic vein deposits.

However, based on the presence of favourable metallogenic settings (Lachance and Pilote, 2003; Pilote, 2002; Doyon, 1995, 1996; Bellehumeur and Valiquette, 1993; Wares, 1988; Stevens, 1983), the north-central Gaspésie region also represents a first-order regional target in the search for: 1) replacement-type (skarns and massive sulphides) Zn-Pb-Ag deposits in limestones, 2) epithermal gold deposits in and around rhyolitic volcanic centres (particularly in Mont Lyall and Mont Tuzo rhyolites peripheral to the Lemieux Dome), 3) SEDEX-type Pb-Zn-Ag-barite deposits associated with manganese-enriched zones in calcareous shales with bentonite beds indicating volcanism coeval with sedimentation in the Upper Gaspé Limestones, 4) volcanogenic massive sulphide (VMS) Zn-Pb-Cu deposits or Besshi-type Cu-Zn deposits, and 5) along the southern margin of the Lemieux Dome, disseminated Pb-Zn deposits in quartzofeldspathic sandstones of the lower Devonian York River Formation.

Recent exploration campaigns led by **Ressources Appalaches Inc.** on its Mont-de-l'Aigle property and geoscience studies conducted by the **Ministère des Ressources naturelles et de la Faune (MRNF)** in the Lac Sainte-Anne area (22B/16-200-0102) confirm the presence of hematite-magnetite-chalcopyrite-quartz-dolomite veins and hydrothermal breccias, particularly in the northern part of the Lemieux Dome. These Paleozoic Appalachian occurrences correspond to iron oxide-copper-gold (IOCG)-type deposits, with a gold component that remains, for the moment, poorly developed.

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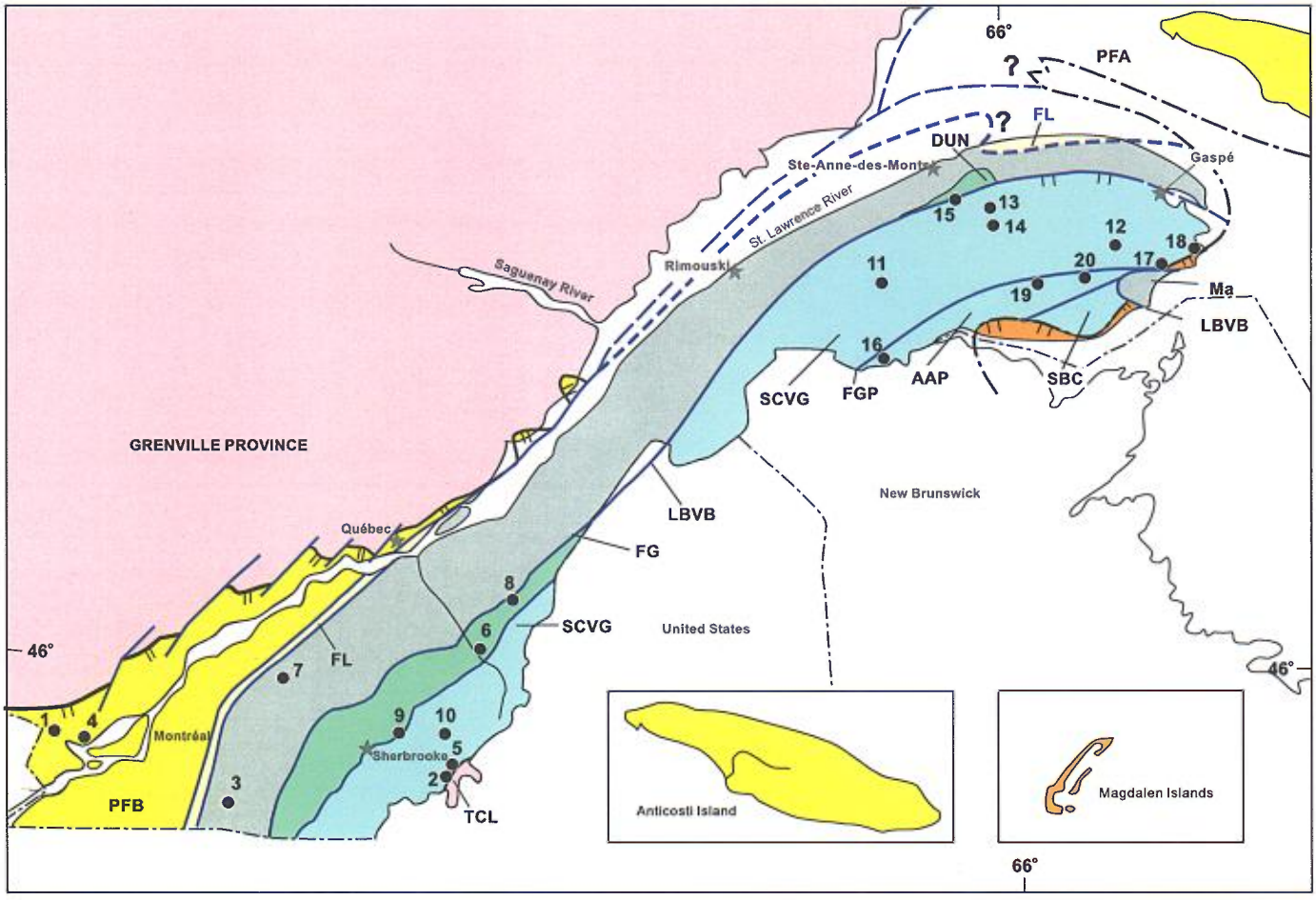

Figure 1F-1. Exploration projects over the St. Lawrence Platform and the Appalachians for 2005.

TABLE 1F-1 - Exploration projects over the St.Lawrence Platform and the Appalachians for 2005 (see figure 1F-1).

Nos.	TOWNSHIPS (SEIGNIORIES)	NTS	COMPANIES / PROSPECTORS	PROJECTS	SUBSTANCES	WORKS [1]
Southwestern Segment (Montréal and Chaudière-Appalaches regions)						
1	Argenteuil (Lacs-des-Deux-Montagnes)	31 G/09	H. Solis / G. Gravel / M. Bezeau / J. Huet	St-André Prospect	Diamond-Nb-REE	G, GpMa(G), Gs(r), Rsi, S
2	Clinton	21 E/07	Ressources Tectonic Inc.	Clinton F	Cu-Zn	G, Gp
3	Dunham, Farnham	31 H/02	K. E. Heusser	Karl Heusser	Au	D(11:417)
4	**(Lac-des-Deux-Montagnes)**	**31 G/09**	**Niocan Inc.**	**Niobium/Oka**	**Nb**	**Env.**
5	Marston	21 E/07	Ressources Tectonic Inc.	Clinton A	Cu-Zn	G
6	(Saint-François)	21 L/02	R. Mainville / T. Burnham	Timrod	Au	Gs(t), Pr, S
7	Simpson	31 H/16	D. Cyr	Drummond	Au-Cu	Pr
8	Ware, Langevin, Roux	21 L/08, 09	Explorateurs-Innovateurs de Québec Inc.	Appalaches	Cu-Ni-Au-Ag-Pb-Zn	GpEm(G), Gs(r), Pr, S
9	Weedon, Lingwick	21 E/11	Ressources Tectonic Inc.	Weedon	Cu-Zn-Au	GpMa(G), Pr
10	Whitton, Gayhurst	21 E/10	Ressources Appalaches Inc.	Sainte-Cécile	Mo	G, Pr
Central Segment (Bas-Saint-Laurent region)						
11	La Vérendrye, Casupscull	22 B/06, 07	Exploration Puma Inc.	Sainte-Marguerite	Au	D(12:350)
Northeastern Segment (Gaspésie and Îles-de-la-Madeleine regions)						
12	Gaspésie	22 A	R. Lelièvre / M. Boudreau / FRAPMCÎM	BBL 32	Au-Ag-Cu-Pb-Zn	Gs(r), Pr, S
13	Lemieux	22 B/16	Ressources Appalaches Inc.	Mont de l'Aigle	Cu-Au	D(3:576)
14	Lemieux	22 B/16	Ressources Threegold Inc.	Vital	Cu-Au	TE
15	Lemieux, Courcelette	22 B/16	2419-1538 Québec Inc.	Lapidaire	Gaspéite	S, T
16	Matapédia	21 O/14	Ressources Appalaches Inc.	Saint-Benoît	Au-Cu	Pr, T
17	Percé	22 A/08	R. Lelièvre / M. Boudreau	Lits rouges cuprifères de Grande-Rivière	Cu	Gs(r), Pr, S
18	Percé, Malbaie	22 A/09	R. Lelièvre / M. Boudreau / FRAPMCÎM	Cannes-de-Roches - Barachois	Zn-Pb-Cu-Ag-Au-Ni-Co-Pt-Pd-Cr-U-V	Gs(r), Pr, S
19	Robidoux	22 A/05, 06	Ressources Appalaches Inc.	Robidoux	Au-Cu	TE
20	Weir, Honorat	22 A/05	Ressources Appalaches Inc.	Lac Arsenault	Au-Ag-Cu-Zn-Pb	D(28:1720), T

1 = See the legend of abbreviations and the signification of italic and bold type in the appendix II.

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Chapter 2

Architectural Stone, Industrial Minerals, Industrial Stone and Peat

2

This chapter describes the results of mineral exploration and mining activities conducted in Québec in 2005 in the field of architectural stone, industrial minerals, industrial stone, and in the peat industry.

Architectural Stone

Yves Bellemare

Production

Figure II (in Appendix I) shows the location of architectural stone quarries active in Québec in 2005. Table II, in Appendix I, provides a brief description of each operation.

In the field of architectural stone, 106 active quarries were compiled in 56 different locations. Architectural stone varieties include:

- rocks from anorthositic, charnockitic, and granitic suites, which account for most of the dimension stone production;
- steatite, soapstone and serpentinite (blocks for sculptures and refractory plates);
- slate (roofing tiles and slabs);
- limestone, dolomite, sandstone, siltstone, marble, quartzite, schist, and gneiss (dimension stone, ashlar, and landscaping stone).

With its 17 quarries in operation, the Rivière-à-Pierre area (NTS 31I/16 and 31P/01) remains the most important mining camp in the dimension stone industry. The Saint-Nazaire (NTS 22D/12), Stanstead (NTS 31H/01), and Saint-Alexis-des-Monts–Saint-Didace (NTS 31I/06) areas are also quite active, with at least four quarries in each sector.

During the year, companies working in Québec launched extraction operations in four new quarries to produce as many new commercial varieties of stone. The most significant work was conducted in the Mauricie, Saguenay–Lac-Saint-Jean, Bas-Saint-Laurent, and Côte-Nord regions. In Hunterstown Township in the Mauricie region, **A. Lacroix et Fils Granit Ltée** completed extensive development work undertaken in 2004. A working face was opened to quarry a brown quartz mangerite of the Saint-Didace Massif, which shows porphyritic and augen textures typical of rocks quarried in the Saint-Alexis-des-Monts area (site 11). North of Saint-Ludger-de-Milot, the same company also began quarrying a brown gabbroic anorthosite of the Lac-Saint-Jean Anorthositic Suite (site 20). In recent years, intense activity in the dimension stone industry has translated into the start-up of four new quarries in the area. Southwest of Saint-Mathieu-de-Rioux, **Les Pierres Saint-Mathieu Inc.** also completed development work on a red sandstone deposit of the Robitaille Formation (site 53). This stone was used for an important restoration project to renovate the exterior walls of the Old Brewery Mission, on Saint-Antoine Street in Montréal. In the Lac Poulin area north of Baie-Comeau, **Granijem Inc.** began quarrying a rock described as a brownish beige granodiorite (site 39). This variety of stone is marketed under the name Nordic Frost.

Exploration

Figure 2.1 shows the location of the 57 projects where exploration and development work took place in 2005. Project descriptions are listed in Table 2.1. One of the highlights of the year is the significant number of projects focussed on the search for slate and marble in the Appalachians. This level of activity has not been seen in Québec in decades.

In the Chute-des-Passes area, **Polycor Inc.** continued its extensive exploration and development program undertaken in 2003. Due to a higher than anticipated rate of fracturation in a brown gabbroic anorthosite, the company carried out surface stripping in nearby areas and block sampling in the quarry (project 16). In the quarry itself, after rocks were removed in a problem zone related to an important set of joints, the recovery rate of commercial blocks markedly increased, bringing the operation back into the profitable range. **Polycor Inc.** also continued prospecting its slate properties in five areas in the Témiscouata, Matapédia, and Gaspésie regions (projects 40, 43, 44, 47, and 48). The rocks under study are actually mudslates of the Témiscouata Formation or the Fortin Group. In the future, the company hopes to develop one of these properties by excavating an open pit to reach the fresh bedrock. Near Cacouna, the company also sampled blocks from green sandstone outcrops of the Saint-Roch Group (project 39). This stone variety is similar to the Sillery Group sandstone quarried in the early 20th century in the Québec City area.

NAMCA Inc. pursued its exploration efforts in the search for marble on seven properties all located in the Gaspésie region. It completed prospecting campaigns undertaken in 2004 and proceeded with block sampling on three of these properties (projects 49, 51, and 53). Exploring the various facies of marble limestone in the West Point and La Vieille formations, it is conducting a market study and awaiting comments from its customers. The decision as to which property will be developed will be guided at least in part by the results of this study.

In addition to completing development work on the two properties described in the preceding section, **A. Lacroix et Fils Granit Ltée** also began or continued exploration work on five other mineral properties, in the search for black gabbro and pink or black gneiss deposits. In Saint-Nazaire, the company continued its exploration program, mainly by drilling within a vast surface area near its three active quarries. The targeted

stone is a black or greenish black gabbro (leucogabbronorite). This multi-year program is focused on the search for a variety of fine-grained black stone (projects 11 and 12).

A black coarse-grained protoclastic anorthosite assigned to the Lac-Saint-Jean Anorthositic Suite is found in the Saint-Henri-de-Taillon area. The stone is very dark to black and takes on a beautiful polish. For over 60 years, the stone has been quarried in many different locations to produce blocks of dimension stone, and exploration continues in the area. In 2005, **Granit C. Rouleau Inc.** sampled blocks on privately owned lands (project 13). Preliminary results are encouraging, and additional work is planned for 2006.

Granijem Inc. continued exploration work on its three properties located to the east and north of Baie-Comeau in the Côte-Nord region (projects 22, 23, and 25). The most important campaign took place in the Lac Poulin area, where the company continued its extensive block-sampling program undertaken in 2004. The rock, described as a brownish beige granodiorite, is to be used for the production of decorative furniture items or as exterior cladding on buildings. The stone will be marketed under the name Nordic Frost.

The presence of numerous blocks of calcrete and limestone breccia previously found near Saint-Isidore-de-Gaspé oriented prospectors **Boudreau** and **Lelièvre** towards an outcropping area, the limits of which remain to be defined (project 57). The rock is pink, orange, and creamy white, transparent, and occurs at the base of the Bonaventure Formation, which confirms, over and above the successful quarrying of the Cascapédia variety by **Polycor Inc.**, a new and interesting geological setting to explore in the Gaspésie region. In thin slabs, the stone is transparent and shows the same properties as onyx-marble. The rock contains red argillaceous material, and polishing tests have yet to be performed. Onyx-marble may be used, among other things, to produce decorative stone, ornamental stone, or to make small decorative objects.

A few articles published in the newspaper *Le Soleil* (June 2, August 13, October 29) discussed a slate processing project in the Avignon MRC by **AC Ardoise Gaspésie Canada Inc.**, a subsidiary of Italian company **AC Ardesia Cuneo Angiolino & C**. The company prospected two properties in the Sainte-Florence area, in the Matapédia MRC (projects 41 and 42) and tabled a business plan regarding the start-up of a processing plant in Matapédia.

The MRNF put up a section on its website describing the history of quarrying operations for several varieties of stone going back to the early days of the French colony in Québec.

2

Industrial Minerals, Industrial Stone, and Peat

N'golo Togola
Charles Gosselin
Pierre Buteau

Production

Figure III (in Appendix I) shows the location of active quarries and mines of industrial minerals and stone, as well as producing peatlands in Québec. Table III in Appendix I provides a brief description of each operation.

Industrial minerals and stones produced in Québec in 2005 include: chrysotile asbestos, ilmenite and titanium slag, graphite, mica, rock salt and brine, clay minerals, peat, silica, as well as limestone, dolomite, and marble.

Chrysotile asbestos is extracted in three mines in the Estrie region. Ilmenite and titanium slag are produced at the Lac Tio mine, north of Havre-Saint-Pierre. Flaky graphite is mined at the Stratmin mine in Lac-des-Îles, south of Mont-Laurier, and mica at the Bédard mine in Suzor Township in the Mauricie region. Rock salt is extracted at the Seleine mine in the Îles-de-la-Madeleine, whereas brines are produced from five wells in the Bécancour area. Shales are quarried in the Montréal area and used to manufacture bricks.

The main sources of silica are: quartzite (5 quarries), sandstone (4 quarries), and natural sand (2 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 (3 operations), various aggregate products (amendments, mineral fillers, granules), or cement (3 producers).

When comparing 2004 figures released by the *Service de l'imposition minière* with preliminary data for 2005 from the *Institut de la Statistique du Québec*, we note a very slight drop of 0.14% in the value of mineral shipments for industrial minerals (peat and silica included). However, interesting increases are recorded for mica (49%), ilmenite (42%), silica (23%), and peat (17%). Sharp decreases in the value of shipments are noted for graphite (30%), rock salt (22%), and asbestos (13%).

In 2005, **Junex Inc.** started producing brines at its new Junex Bécancour no.7 well in Bécancour. These brines are used as dust control agents in the summer and as de-icing products in the winter.

In 2005, 16 peat producers were active in Québec, in 35 peatlands located for the most part in the Bas-Saint-Laurent, Côte-Nord, and Saguenay–Lac-Saint-Jean regions. The peat-harvesting season was exceptionally late in starting for the fourth consecutive year. The first harvesting operations were recorded in early July. However, by mid-August, most producers had already reached nearly 75% of their production objectives. Weather conditions prevailing from that time on until the end of September enabled many operations to reach and even exceed their annual production targets.

Exploration

In 2005, 5 mineral exploration projects targeting different commodities were carried out (Figure 2.1 and Table 2.2).

In the Murdochville area, **Exploration Orbite VSPA Inc.** collected 93 samples of red clay (project 58) on its Grande-Vallée property, in order to perform chemical analyses, X-ray diffraction, microprobe analyses, metallurgical testing, and technical assessment studies. Red clays of the Orignal Formation contain non-metallic mineral substances (kaolin, silica) that may be of interest to aluminium smelters, cement plants, and refractory plants.

In Polette Township near La Tuque, **South-Malartic Exploration Inc.** conducted a sampling program (project 61) on a marble unit of the Grenville Supergroup.

Opportunities for Exploration

For architectural stone, recent exploration work and geological mapping in areas near Saint-Isidore-de-Gaspé, Saint-Jules-de-Cascapédia, and Caplan have outlined the potential of calcretes and limestone breccias at the base of the Bonaventure Formation for decorative stone and ornamental stone purposes. Jutras and Prichonnet (2002) had previously concluded that, in the Saint-Jules-de-Cascapédia area, calcretes capping a new clastic unit called the Saint-Jules Formation had developed in the upper karstified part of beds in this formation confined within a post-sedimentation graben. This knowledge may help orient future mineral exploration in various parts of the Gaspésie region and help locate prospecting targets at the base of the Bonaventure Formation.

For industrial minerals, geological mapping carried out in NTS sheet 31J/14 (Nantel, 2000) outlined the sillimanite potential of paragneiss bands in the northern part of the Central Metasedimentary Belt. Aluminous paragneisses in the Lac de la Dame area northeast of Sainte-Anne-du-Lac appear to have good sillimanite potential, given the high sillimanite content of the rock and the coarse grain size. Thin section studies and mineral separation tests indicate that sillimanite crystals are generally of good quality and that bonds with other minerals are typically simple.

2

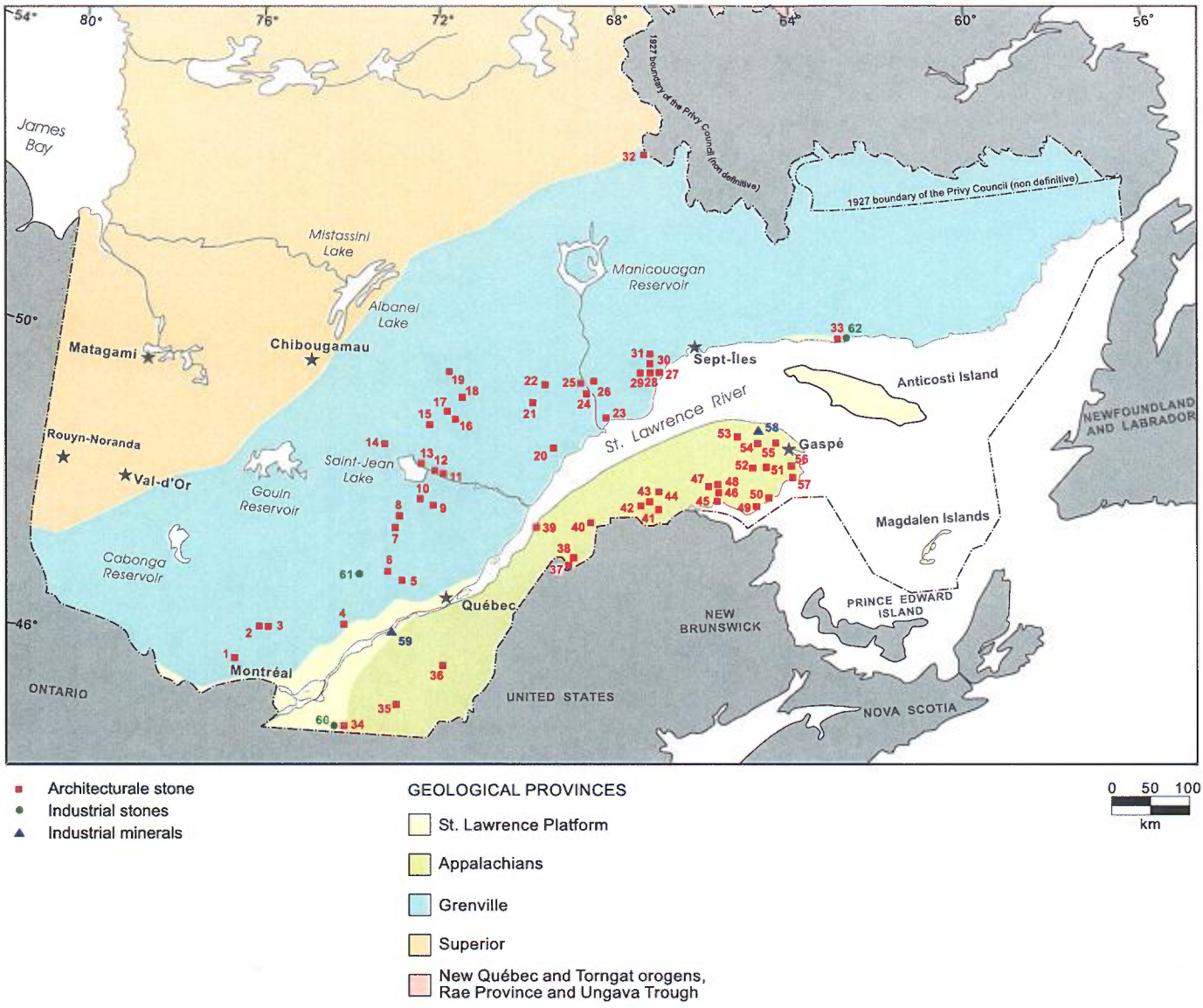


Figure 2.1. Exploration work for architectural stone, industrial minerals and stone in Québec in 2005.

TABLE 2.1 - Exploration work in Québec for architectural stone for 2005 (see figure 2.1).

Nos.	NTS	MINING TITLES	HOLDERS	USE [1]	WORKS [1]	DETAILS
1	31 G/14	CDC 84300 À 84308	3721078 Canada Inc. (Mountain Granite)	DS, MO	FM, Pr	In old sector of François Bourgeois quarry, black diabase
2	*31 J/07*	*BEX 337*	*Les Pierres Mitchell Inc.*	*BS*	*D*	*Labelle ouest project, paragneiss*
3	*31 J/07*	*BEX 330*	*Les Pierres Mitchell Inc.*	*BS*	*D*	*Labelle est project, paragneiss*
4	**31 I/06**	**BEX 463, BNEP 922, CDC 9829 to 9836, 41691 to 41694, 50411 to 50414**	**A. Lacroix et Fils Granit Ltée**	**DS**	**Bs, FM, Pt, T**	**Saint-Alexis-des-Monts project, quartz mangerite, brown**
5	31 P/01	CDC 81183, 83725 to 83733	A. Lacroix et Fils Granit Ltée	DS	Pr	Lac Stein project, black migmatized gneiss, pink farsundite, fine grain
6	31 P/01	CDC 60577 to 60586, 95972 to 95974	Granicor Inc.	DS	D, T	Lapeyrère project, blackish or greyish brown gabbro, 5 explored targets
7	31 P/16	CDC 47865 à 47868	Exploration Géotech Enr.	DS, MO	Pr	Gendron project, black gabbro, fine grain
8	31 P/16	CDC 96789 à 96790	Exploration Géotech Enr.	DS, MO	Pr, Pt, S	Biart project, black gabbro, fine grain, positive results
9	22 D/04	CDC 97297 to 97318	M. Tremblay	DS	D, Pr, S	Parc des Laurentides project, green mangerite
10	22 D/04	CDC 105218 to 105219, 105225 to 105227	P. and R. Cloutier	DS	S	Nuit Étoilée project, bronzite norite, black, coarse grain
11	22 D/11, 22 D/12	CDC 7285-7287	A. Lacroix et Fils Granit Ltée	DS	D	Noir Atlantique est project, metagabbronorite, greyish black, fine to medium grain
12	22 D/12	No	A. Lacroix et Fils Granit Ltée	DS	Pr, S	Noir Atlantique ouest project, black "granite"
13	22 D/12	No	Granit C. Rouleau Inc.	DS	Bs, Pt, T	Saint-Henri-de-Taillon project, black anorthosite
14	32 A/15	CDC 48894, 96717 to 96720	Granicor Inc.	DS	Bs, Pt, T	Acajou 2 project, quartz mangerite, porphyritic, reddish brown
15	22 E/04	CDC 7023-7024	Prospection Olivier Perron Enr.	DS	T	Reflet d'amazonite project, anorthosite mauve and green
16	*22 E/06*	*CDC 1014109 to 1014111, 1014113 to 1014115, BEX 402*	*Polycor Inc.*	*DS*	*Bs, T*	*Kodiak project, gabbroic anorthosite, brownish black*
17	**22 E/06**	**BNEP 986, CDC 93013 to 93027, 95652 to 95656**	**A. Lacroix et Fils Granit Ltée**	**DS**	**Bs, FM, Pt, T**	**Lac du Relais project, brown gabbroic anorthosite**
18	22 E/11	CDC 93002 to 93012	A. Lacroix et Fils Granit Ltée	DS	Pr	Lac du Loup Cervier project, "granite"
19	22 E/14	CDC 14613 to 14624	A. Lacroix et Fils Granit Ltée	DS	FM, Pr	New Rainbow project, migmatized and banded gneiss, reddish pink, medium grain
20	22 C/14	CDC 93997 et 1026191	E. Hurtubise and M. Simard	DS	Pr	Marinier I and II project, paragneiss
21	22 F/12	CDC 29992 to 29993	M. Simard	DS	Bs, Pt	Pale green mangerite, coarse grain
22	**22 F/14**	**BNEP 976, CDC 1099143 to 1099144**	**Granijem Inc.**	**DS**	**Bs, FM, Pt**	**Lac Poulin project, granodiorite, brownish beige**
23	22 F/08	CDC 12427 to 12432, 17586 to 17587	Granijem Inc.	DS	S, T	Anse Saint-Pancrase project, granitic gneiss, reddish pink
24	22 F/10	CDC 51389 to 51391, 90977 to 90979	Association des Prospecteurs de la Manicouagan	DS	Pr, S	Gobeil project, brownish purple grey anorthosite
25	**22 F/15**	**BNEP 975, CDC 1039985 to 1037992, 1100694**	**Granijem Inc.**	**DS**	**Bs, D, FM, Pt, S**	**Manic project, straight gneiss, migmatized, rosy grey**

TABLE 2.1 - Exploration work in Québec for architectural stone for 2005 (see figure 2.1).

Nos.	NTS	MINING TITLES	HOLDERS	USE [1]	WORKS [1]	DETAILS
26	22 F/16	CDC 1053689 to 1053690, 1053692 to 1053693, 1099722, 1116911 to 1116912	M., G. and M. Bourque	DeS, DS	Pt, S	Marbre Manicouagan project, fault gouge, epidotized, chloritized and hematized
27	22 G/14	CDC 63628 to 63629, 63634 to 63635, 63638 to 63639	R. Landry, J.-C. Rochette	DS	Pr, S, T	Maliphandi project, quartz mangerite, porphyritic, green, coarse grain
28	22 G/14	CDC 13658 to 13659	Polycor Inc.	DS	FM	Rose Rivière project, quartz-feldspar migmatite, pink and black, fine grain
29	22 G/14	CDC 42700, 63631	R. Landry, J.-C. Rochette	DS	Pr, S, T	Pagne project, migmatized paragneiss, blackish grey and orange pink, fine grain
30	22 J/03	CDC 104969 to 104970	E. Picard Landry, R. Landry, J. C. Rochette	DS	Pr, S, T	Paora project, migmatized paragneiss, orange pink, medium grain
31	22 J/03	CDC 1009857 to 1009862	Polycor Inc.	DS	Pr	Granit Walker project, foliated mangerite, green, coarse grain
32	23 B/14	CDC 1041642 to 1041644, 1052820 to 1052821, 1084187 to 1084206	Exploration Québec Labrador Inc.	BS	Bs	Lac Daviault project, white quartzite, Wishart Formation
33	12 L/03, 12 L/06	CDC 14748 to 14751, 15838, 16420 to 16431, 19762 to 19764	Marbre Dolostone Minganie Inc.	DS	D, Pt, S, T	Dolomite, Romaine Formation and limestone, Mingan Formation, 5 explored targets
34	*31 H/03*	*No*	*NAMCA Inc.*	*DeS, DS*	*FM*	*Saint-Armand project, calcilutite, Strites Pond Formation*
35	31 H/08	CDC 1099961 to 1099964	Les Produits d'Ardoise Québec Inc.	DS	Bs, Pt, T	Saint-Élie project, agglomerate with granitic rock fragments, reddish grey in olive green matrix
36	21 E/14	CDC 33878 to 33883, 34143 to 34146, 43283 to 43284	M. Vallée and G. Bonin	DS	Pr, Pt, S	Greenish bluish black gabbro, pyroxenite and dunite
37	21 N/07	CDC 1082536, 1082541, 1082701 to 1082703	Glendyne Inc.	DS, RT	Rsi	Botsford sud project, bluish black slate, Témiscouta Formation
38	*21 N/07*	*CDC 1082540 to 1082541, 1082701 to 1082703*	*Glendyne Inc.*	*DS, RT*	*Rsi*	*Carrière project, bluish black slate, Témiscouta Formation*
39	21 N/14	No	Polycor Inc.	DS	T	Cacouna project, greenish grey sandstone, Saint-Roch Group
40	21 N/15, 21 N/16	CDC 34058 to 34099	Polycor Inc.	DS, RT	Pr	Témiscouata project, mudslate (slate), Témiscouata Formation
41	22 B/03	CDC 90956 to 90976	AC Ardoise Gaspésie Canada Inc.	DS, RT	FM, Pr	Matapédia sud project, mudslate (slate), Fortin Group
42	22 B/03	CDC 91417 to 91424	AC Ardoise Gaspésie Canada Inc.	DS, RT	FM, Pr	Matapédia nord project, mudslate (slate), Fortin Group
43	22 B/03, 22 B/06	CDC 34398 to 34421	Polycor Inc.	DS, RT	Pr	Sainte-Florence project, mudslate (slate), Fortin Group
44	22 B/06	CDC 89645 to 89654, 104762 to 104770	Polycor Inc.	DS, RT	Pr	Sainte-Florence est project, mudslate (slate), Fortin Group
45	*22 A/04*	*No*	*NAMCA Inc.*	*DeS, DS*	*FM*	*Cascapédia project, marble limestone (breccia), reddish purple, Bonaventure Formation*

TABLE 2.1 - Exploration work in Québec for architectural stone for 2005 (see figure 2.1).

Nos.	NTS	MINING TITLES	HOLDERS	USE [1]	WORKS [1]	DETAILS
46	22 A/05	CDC 1128220 to 1128224	La Grande Coulée Inc.	DeS, DS	Min, Pt, S, T	Grande-Cascapédia project, greyish black gabbro
47	22 B/08	CDC 34362 to 34370	Polycor Inc.	DS, RT	Pr	Transgaspésienne ouest project, mudslate (slate), Fortin Group
48	22 A/05	CDC 34371 to 34380	Polycor Inc.	DS, RT	Pr	Transgaspésienne est project, mudslate (slate), Fortin Group
49	22 A/03	CDC 1039222 to 1039227	NAMCA Inc.	DeS, DS	Bs, FM, Pt	Clemville project, limestone, La Vieille Formation
50	22 A/02	No	NAMCA Inc.	DeS, DS	FM	Port-Daniel project, marble (limestone), West Point Formation
51	22 A/10	CDC 95818 to 95821, 1133826	NAMCA Inc.	DeS, DS	Bs, FM, Pt	Montagne Blanche project, greyish black limestone with white calcite veins, West Point Formation
52	22 A/11	CDC 99444 to 99452	ASPM Inc.	DS	Pt, S, T	Basalte à aiguilles project, mafic or intermediate volcanite, Lac McKay Member
53	22 H/03	CDC 11698 to 11702	NAMCA Inc.	DeS, DS	Bs, FM, Pt	Marin - Lavoie project, limy conglomerate, West Point Formation
54	22 A/14	CDC 93597 to 93598	FRAPMGIM	BS	G, FM, Pr, S	Fletcher project, siliceous limestone, York Lake Formation
55	22 A/15	CDC 46319 to 46324	NAMCA Inc.	DeS, DS	Pr	Rivière Darmouth project, marble (limestone), West Point Formation
56	22 A/09	CDC 104505 to 104544	M. Boudreau and R. Lelièvre	BS, DS	G, Pr	Barachois project, black orthoquartzite, base of White Head Formation
57	22 A/08	CDC 62236 to 62239, 62247 to 62256	M. Boudreau and R. Lelièvre	DeS	G, Pr, S	Saint-Isidore project, two explored targets, marble limestone (calcrete and breccia), base of Bonaventure Formation

1 = See the legend of abbreviations and the signification of italic and bold type in the appendix II.

TABLE 2.2 - Exploration work in Quebec for Industrial minerals and stones for 2005 (see figure 2.1).

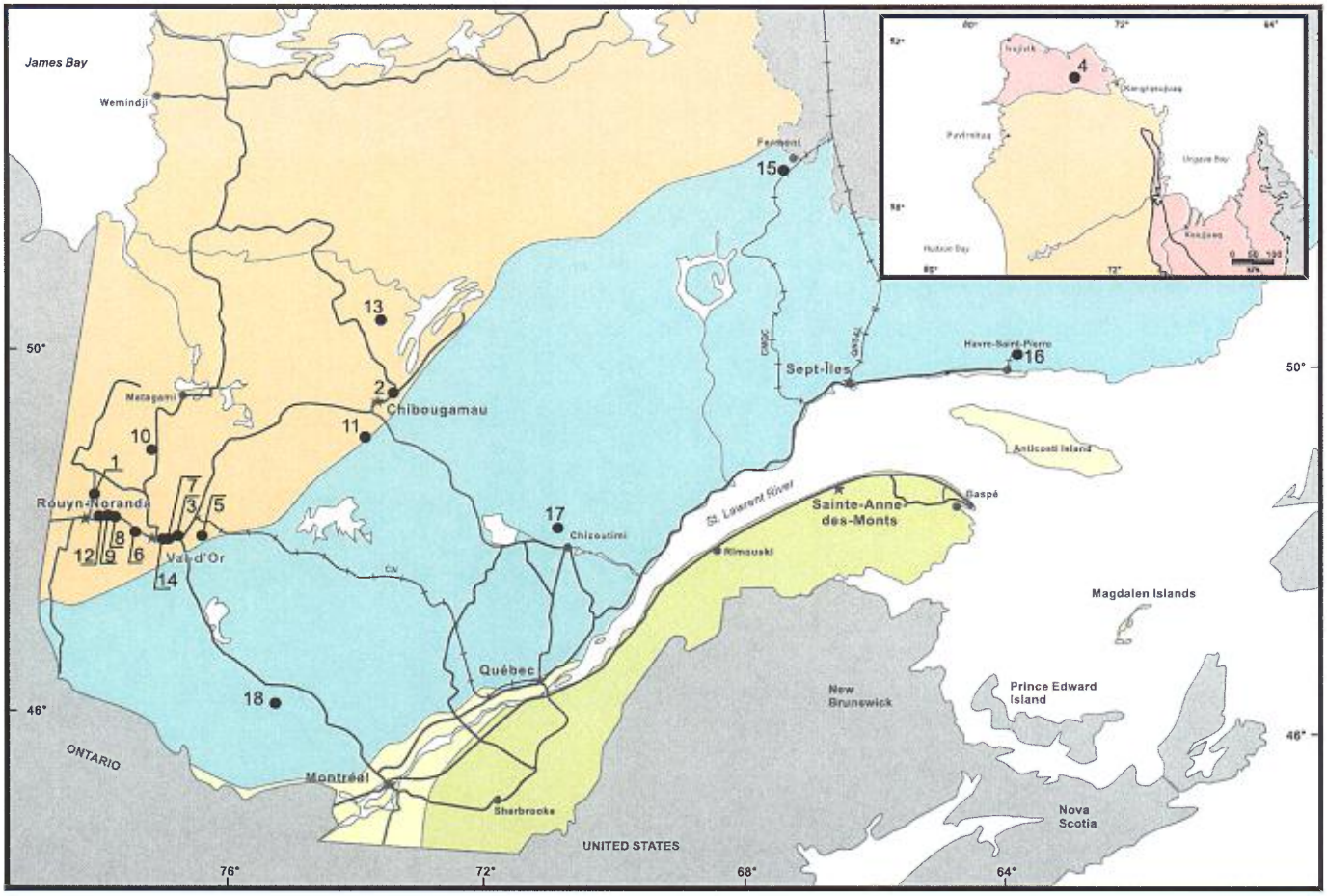
SITE	TOWNSHIPS (SEIGNIORIES)	NTS	COMPANIES \ PROSPECTORS	PROJECTS	SUBSTANCES	WORKS [1]
58	Le François	22 H/03	Exploration Orbite VSPA Inc.	Grande Vallée	Kaolin, silica	Met, S, TE
59	Bécancour	31 I/08	Junex Inc.	Bécancour	Natural Brine	D
60	Stanbridge	31 H/03	Omya St-Armand	Mississiquoi Marble Quarry	Limestone	D (4:30)
61	Matawin	31 P/02, 31 P/03	Exploration Malarctic-Sud Inc.	Matawin	Marble	E
62	Beaussier / Courtemanche	12 L/03	Exploration Geotech Enr.	Dolorec	Dolomitic limestone	FM, TE

1 = See abbreviation list in appendix II.

Appendix I

Location of producing mines and architectural stone quarries in Québec

APPENDIX I



Active mines

BASE METALS
1 - Bouchard-Hébert
2 - Copper Rand
3 - Louvicourt
4 - Raglan

PRECIOUS METALS
5 - Croinor
6 - East Amphi
7 - Beaufor
8 - Donald J.LaRonde
9 - Doyon
10 - Géant Dormant
11 - Joe Mann
12 - Mouska
13 - Troilus
14- Sigma-Lamaque

OTHER METALS
15 - Mont Wright
16 - Lac Tio
17 - Niobec
18 - Lac-des-Îles

GEOLOGICAL PROVINCES

- St. Lawrence Platform
- Appalachians
- Grenville
- Superior
- New Québec and Torngat orogens, Rae Province and Ungava Trough

- Main road
- Railroad
- Resident geologist office
- 8 Site

Figure 1. Active mines in Québec for 2005 (metallic substances).

Table 1 - Production of metallic substances in Québec (see figure 1).

Site	Mine	Company	Summary description of the deposit	Ore process in 2005	Metal production in 2005	Ore processing in 2005	Proven mineral reserves (at Jan. 1st 2006)	Probable mineral reserves (at Jan. 1st 2006)	Employees in 2005	Cumulative production	Number of years of production	Township / NTS / Administrative region/ Mining district
Base metals: Cu and Zn (Au and Ag)												
1	Bouchard-Hébert	Breakwater Resources Ltd	Massive sulfides (PY-SP-CP) subvertical lenses in rhyolites and pyroclastics	117,057 t at 0.46% Cu 5.81% Zn 1.11 g/t Au 31.17 g/t Ag	440 t Cu 5,348 t Zn 78.31 kg Au 1,119.88 kg Ag	Bouchard-Hébert Mine	–	–	53	9,578,716 t at 0.79% Cu 4.93% Zn 1.43 g/t Au 43.39 g/t Ag	1995-2005 (11) End of production Feb. 20, 2005	Dufresnoy / 32 D/07 / 08 / **Rouyn-Noranda**
2	Copper Rand	Campbell Resources Inc.	Cu-Au porphyry type. Semi-massive lens of PY-CP-PO	136,688 t at 2.28% Cu 1.74 g/t Au 6.22 g/t Ag	3,067.2 t Cu 220.66 kg Au 679.38 kg Ag	Copper Rand Mine	***1,323,596 t at 1.74 % Cu 2.58 g/t Au	N.a.	75	14,220,077 t at 3.00 g/t Au 1.80% Cu	1959-1997 2004-20.. (40)	McKenzie / 32 G/16 / 10 / **Chibougamau**
3	Louvicourt	Aur Resources Inc.	VMS-type associated with Val-d'Or Formation, dominated by lapilli ash tuffs and exhalative chert	819,921 t at 2.20% Cu 1.85% Zn 0.81 g/t Au 29.50 g/t Ag	17,261.4 t Cu 12,849.1 t Zn 461.0 kg Au 14,293.0 kg Ag	Louvicourt Mine	–	–	188	15,913,337 t at 3.40% Cu 1.58% Zn 0.90 g/t Au 26.10 g/t Ag	1994-2005 (10.5) End of production July 12, 2005	Louvicourt / 32 C/04 / 08/ **Val-d'Or**
4	Raglan	Québec Mining Raglan Society Ltd	Magmatic massive sulfides lenses at the base of ultramafic flows	934,000 t at 0.84% Cu 2.84% Ni	6,300 t Cu 22,900 t Ni 450 t Co	Concentrator - Raglan / smelter - Sudbury / refinery -Norway	***5,942,000 t at 0.72% Cu 2.58% Ni 0.05% Co	***8,908,000 t at 0.81% Cu 2.95% Ni 0.05% Co	400	N.a.	1998-20.. (8)	35 G/09, 35 H/11 and 35 H/12 / 10 / **Sept-Îles**
Precious metals: Au and Ag												
5	Croinor	South-Malartic Exploration Inc.	Multidirectional lenticular gold-bearing zones of quartz, carbonate, tourmaline and pyrite in shears crosscutting and displacing the Croinor diorite sill	23,363 t at 5.38 g/t Au	119.24 kg Au	Camflo Mill	–	–	2	75,752 t at 3.3 g/t Au	2003-20.. (3)	Pershing / 32 C/04 / 08 **Val-d'Or**
6	East Amphi	Mines Richmont inc.	Gold-bearing mineralization in a stockwork of quartz, tourmaline and pyrite veins crosscutting a feldspathic porphyry unit and diorite dykes.	39,785 t at 3.67 g/t Au	142.36 kg Au 9.86 kg Ag	Camflo Mill	**267,201 t at 4.15 g/t Au	**303,602 t at 6.32 g/tAu	58	–	2005-20..	Malartic / 32 D/01 / 08 / **Val-d'Or**
7	Beaufor	Richmont Mines Inc.	Gold-bearing veins located inside of E-W shear zones at the margin of the Bourlamaque batholith	204,862 t at 5.70 g/t Au	1,136.29 kg Au	Camflo Mill	**108,636 t at 7.28 g/t Au	**385,657 t at 9.00 g/t Au	120	1,688,394 t at 7.41 g/t Au	1933-1951 1996-20.. (28)	Pascalis / 32 C/04 / 08 / **Val-d'Or**

Table I - Production of metallic substances in Québec (see figure I).

Site	Mine	Company	Summary description of the deposit	Ore process in 2005	Metal production in 2005	Ore processing in 2005	Proven mineral reserves (at Jan. 1st 2006)	Probable mineral reserves (at Jan. 1st 2006)	Employees in 2005	Cumulative production	Number of years of production	Township / NTS / Administrative region/ Mining district
8	Donald J.LaRonde	Agnico-Eagle Mines Ltd	Massive and semi-massive pyrite lenses in sericitized felsic volcanics and metamorphosed in andalusite and kyanite-bearing schists	2,671,811 t at 3.1 g/t Au 77.5 g/t Ag 0.47% Cu 4.06% Zn	7,529.68 kg Au 175,047.47 kg Ag 8,026.84 t Cu 90,054.81 t Zn	Concentrator Division LaRonde, Preissac	**3,218,919 t at 3.1 g/t Au 90.8 g/t Ag 0.43% Cu 4.50% Zn	**31,043,621 t at 4.5 g/t Au 46.3 g/t Ag 0.32% Cu 2.22% Zn	620	19,563,977 t at 5.06 g/t Au 52.87 g/t Ag 0.43% Cu	1988-20.. (18)	Bousquet / 32 D/08 / 08 / **Rouyn-Noranda**
9	Doyon	Cambior Inc.	Veinlets and disseminated pyrite in sericite schists, in intermediate felsic volcanics and in Mooshla pluton	695,000 t at 4.70 g/t Au 2.10 g/t Ag	3,083.07 kg Au 1,698.64 kg Ag	Doyon Mine	***1,940,000 t at 5.10 g/t Au 2.3 g/t Ag	***1,165,000 t at 5.80 g/t Au 2.6 g/t Ag	315	28,726,091 t at 5.71 g/t Au	1980-20.. (26)	Bousquet / 32 D/07 / 08 / **Rouyn-Noranda**
10	Sleeping Giant	Cambior Inc.	Gold-bearing quartz and sulfides veins at contact between dacitic intrusions and lava flows	148,622 t at 10.6 g/t Au 14.8 g/t Ag	1,530.43 kg Au 2,142.79 kg Ag	Sleeping Giant Mine	***185,600 t at 11.8 g/t Au 16.5 g/t Ag	***190,000 t at 11.0 g/t Au 15.4 g/t Ag	200	2,666,627 t at 10.19 g/t Au	1987-1991 1992-20.. (20)	Chaste / 32 F/04 / 10 / **Val-d'Or**
11	Joe Mann	Campbell Resources Inc.	Sulfides-bearing quartz veins in gabbro and sheared rhyolite	126,158 t at 7.90 g/t Au 7.15 g/t Ag 0.34% Cu	915.37 kg Au 677.86 kg Ag 407.33 t Cu	Copper Rand Mine	***99,156 t at 7.50 g/t Au 0.30% Cu	N.a.	135	4,607,522 t at 8.32 g/t Au	1956-1959 1974-1975 1987-20.. (24)	Rohault / 32 C/08 / 10 / **Chibougamau**
12	Mouska	Cambior Inc.	Quartz veins in the Mooshla diorite close to the northern sheared contact	111,585 t at 16.03 g/t Au 3.3 g/t Ag	1,828.29 kg Au 368.16 kg Ag	Doyon Mine	***137,100 t at 15.1 g/t Au 3.2 g/t Ag	***152,000 t at 14.6 g/t Au 3.0 g/t Ag	125	N.a.	1991-20.. (15)	Bousquet / 32 D/07 / 08 / **Rouyn-Noranda**
13	Troilus	Inmet Mining Corporation	Au-Cu porphyry in diorite	6,929,056 t at 0.978 g/t Au 0.074% Cu	4,961.85 kg Au 4,604.48 kg Ag 4,445 t Cu	Troilus Mine	***5,703,173 t at 0.562 g/t Au 0.072% Cu	***18,681,573 t at 0.933 g/t Au 0.08% Cu	291	49,215,076 t at 1.103 g/t Au 0.111% Cu	1997-20.. (9)	32 O/01 / 10 / **Chibougamau**
14	Sigma-Lamaque	Century Mining Corporation	Subhorizontal auriferous tourmaline-bearing quartz-pyrite veins in shear zones	N.a.	N.a.	Sigma Mine	N.a.	N.a.	N.a.	N.a.	1938- 2003 2005-20.. (66)	Bourlamaque / 32 C/04 / 08 / **Val-d'Or**

Table I - Iron, ilmenite, niobium and graphite productions in Québec (see figure I).

Site	Mine	Company	Summary description of the deposit	Total production in 2005	Total shipment in 2005	Shipment of first transformation products in 2005	Reserves (at Jan. 1st 2006)	Employees in 2005	Cumulative production	Years of production	Township / NTS / Administrative region/ Mining district
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	10.4 M cubic meters of iron mineral extract; 19.2 Mt (iron concentrate and pellets	13,518,383 t (**2004**)	9,213,202 t (pellets) (**2004**) 4,274,203 t (concentrate) (**2004**)	N.a.	1,900 (Mt-Wright + Port-Cartier)	N.a.	1976-20.. (29)	Normanville / 23 B/14, 23 B/11 and 23 B/09 / 09 / **Sept-Îles**
15	Lac Tio	Iron and Titanium QIT Inc.	Massive hemo-ilmenite in anorthosite associated with the Havre-Saint-Pierre intrusive suite	N.a.	N.a.	N.a.	N.a.	300	N.a.	1950-20.. (55)	Parker / 12 L/09 and L/11 / 09 / **Sept-Îles**
16	Niobec	Cambior Inc.	Pyrochlore in the St-Honoré carbonatite	1,449,102 t at 0.66% Nb_2O_5	N.a.	5,674,482 kg FeNb Niobec Mine (ferroniobium an aluminothermic converter)	***15,018,409 t at 0.64% Nb_2O_5 (proven) ***6,468,746 t at 0.71% Nb_2O_5 (probable)	236	N.a.	1976-20.. (29)	Simard / 22 D/11 / 05 / **Montréal-Estrie-Laurentides**
17	Lac-des-Îles	Timcal Canada Inc.	Disseminated graphite flakes in crystalline limestone with quartzite horizons	14,000 t graphite (240,000 t)	N.a.	Do not apply	Confidential data	70	N.a.	1989-20.. (17)	Bouthillier / 31 J/05 / 15 / **Montréal-Estrie-Laurentides**

Abbreviation List

Au: Gold	BO: Biotite	PY: Pyrite	VMS: Volcanogenic massive sulfides	t: Metric ton
Ag: Silver	CP: Chalcopyrite	SP: Sphalerite	Ni: Nickel	
Cu: Copper	PO: Pyrrhotite	Zn: Zinc	N.a.: Non available	

NOTE

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

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

The reserves compiled in this table take into consideration:

*** Ore losses**
**** Ore dilution**
***** Ore losses and ore dilution**
****** none of those factors**

APPENDIX I

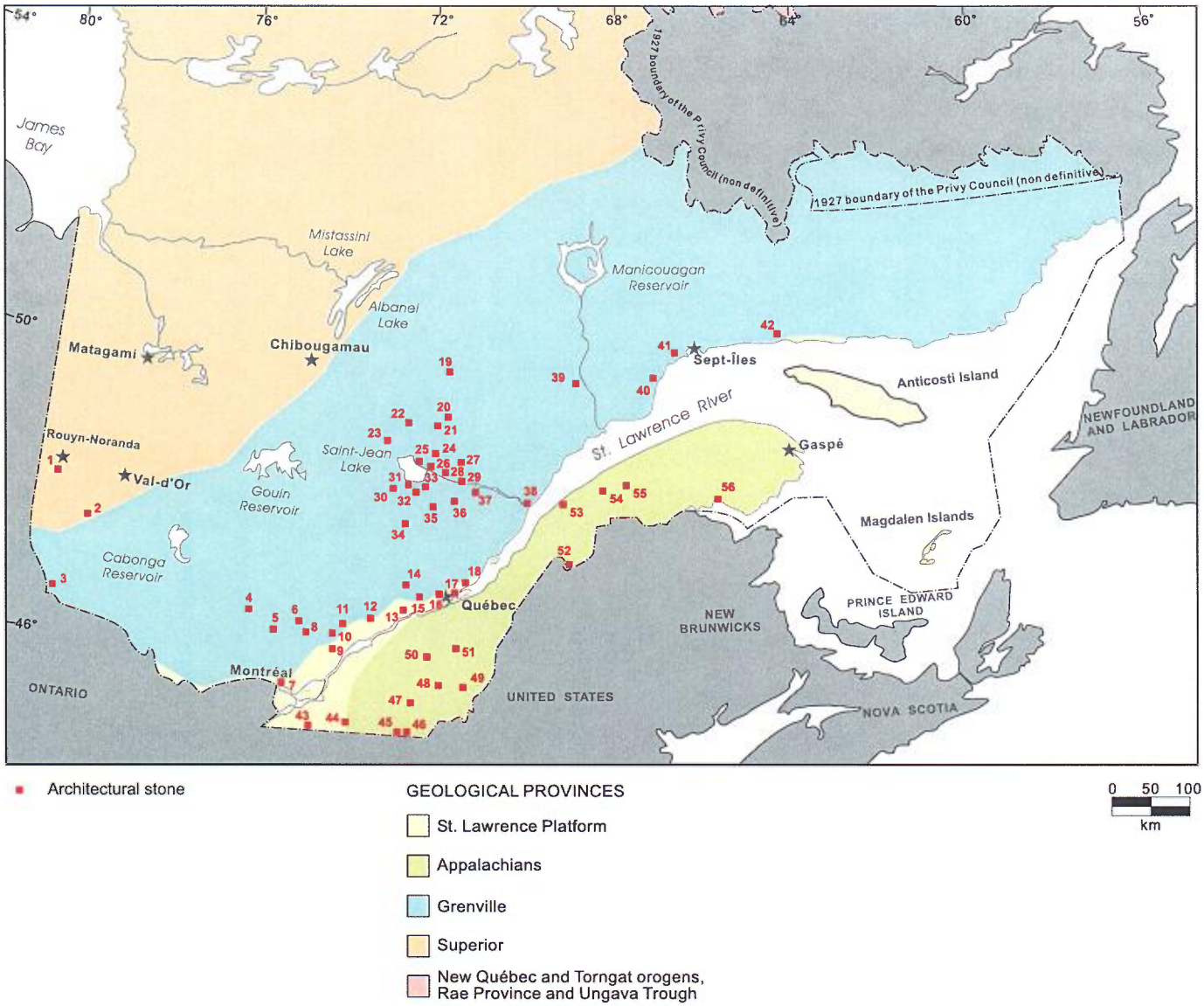


Figure II. Architectural stone quarries exploited in Québec in 2005 (for details, see table II).

APPENDIX I

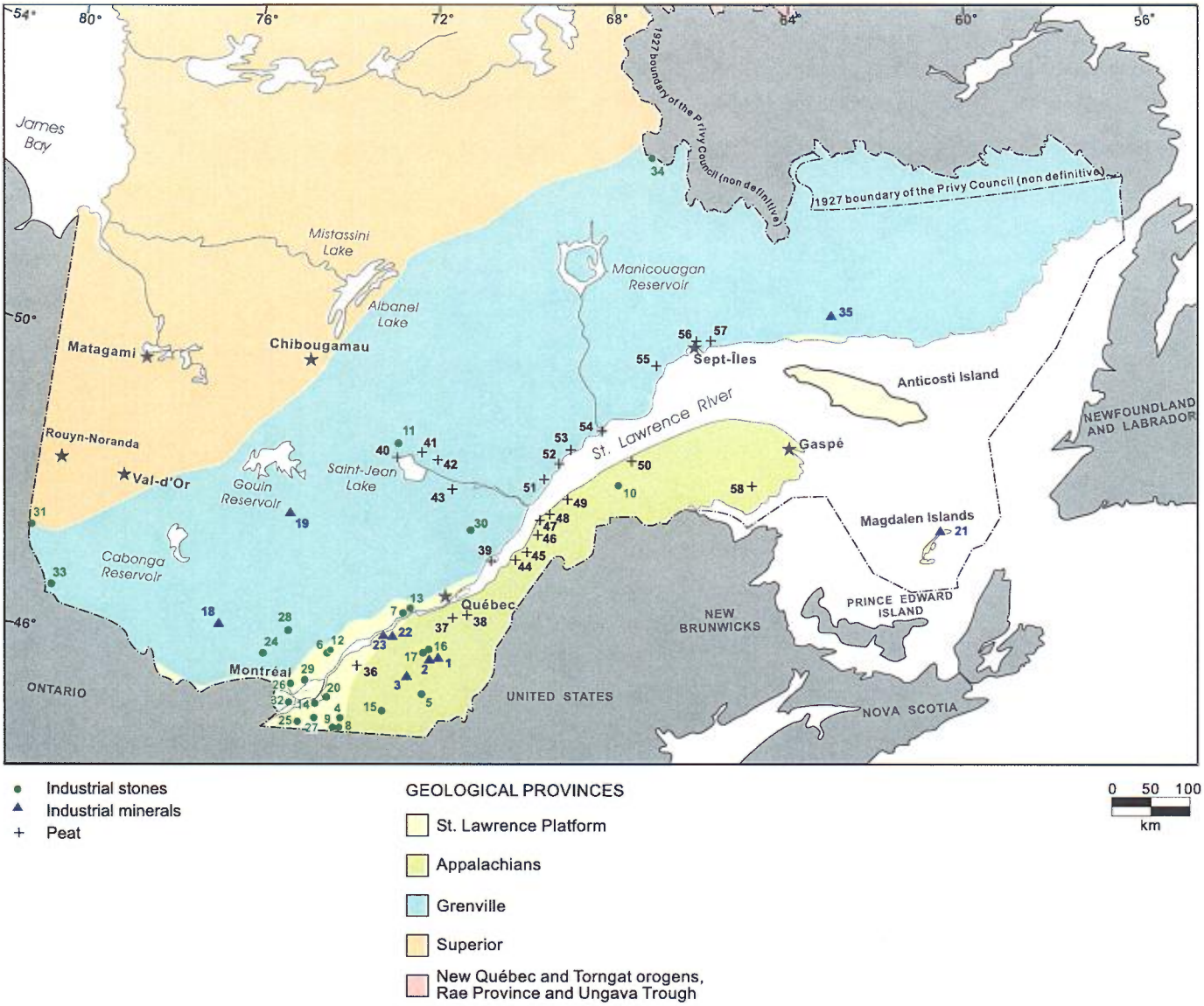


Figure III. Peat deposits, industrial minerals and stones quarries in production in Québec in 2005 (for details, see table III).

TABLE II – Architectural stone quarries exploited in Québec during 2005 (see figure II).

SITE	LOCATION	COMPANIES	ROCK TYPE / PRODUCTS [1]	COMMERCIAL NAME	NTS - ADMINISTRATIVE REGION	TITLE
1	Beaudry	Les Pierres du Nord	Biotite schist - BS	Nordic Schist	32 D/03 - 08	BEX 086
2	Winneway	Polycor Inc.	Granite - DS	Winneway	31 M/09 - 08	BEX 167
2	Winneway	Polycor Inc.	Granite - DS	Winneway	31 M/09 - 08	BEX 323
3	Témiscaming	Les Pierres du Nord	Muscovite quartzite - BS	Aventurine	31 L/10 - 08	BEX 355
4	Guénette	Rock of Ages Canada Ltd	Monzogranite - DS, MO	Laurentian Pink, Autumn Pink	31 J/11- 15	CM 079
5	Labelle	Les Pierres Mitchell Inc.	Paragneiss - BS	–	31 J/07 - 15	BEX 330
5	Labelle	Les Pierres Mitchell Inc.	Paragneiss - BS	–	31 J/07 - 15	BEX 337
5	Labelle	Les Pierres Naturelles Durand Enr.	Paragneiss - BS	–	31 J/07 - 15	BEX 076
6	Saint-Donat-de-Montcalm	Carrières F. L. Inc.	Gneiss - BS	–	31 J/08 - 14	BEX 140
7	Mirabel	Les Pierres Saint-Canut Ltée	Sandstone - BS	Saint-Canut Sandstone	31 G/09 - 15	None
8	Notre-Dame-de-la-Merci	A. Lacroix et Fils Granit Ltée	Anorthosite - DS	Orion	31 I/05 - 14	BEX 255
9	Joliette	Firstake Capital Corporation	Limestone - BS	Joliette Gris, Joliette Jaune	31 I/03 - 14	None
10	Saint-Didace	A. Lacroix et Fils Granit Ltée	Quartz mangerite - DS	Nordix Red	31 I/06 - 14	None
11	Saint-Alexis-des-Monts	Firstake Capital Corporation	Quartz mangerite - DS	Diamond Brown, Auburn	31 I/06 - 04	BEX 174
11	Saint-Alexis-des-Monts	Granicor Inc.	Quartz mangerite - DS, CS	Autumn Brown	31 I/06 - 04	None
11	Saint-Alexis-des-Monts	Polycor Inc.	Quartz mangerite - DS	Newton Brown	31 I/06 - 04	None
11	Saint-Alexis-des-Monts	A. Lacroix et Fils Granit Ltée	Quartz mangerite - DS	Autumn Brown	31 I/06 - 04	BEX 463, BNEP 922
12	Shawinigan	Les Entreprises Élie Grenier Inc.	Gneiss - BS	–	31 I/10 - 04	None
13	Saint-Marc-des-Carrières	Graymont (Portneuf) Inc.	Limestone - DS	Saint-Marc Limestone	31 I/09 - 03	None
13	Saint-Marc-des-Carrières	Les Pierres de Rocaille du Québec	Limestone - BS	–	31 I/09 - 03	None
14	Rivière-à-Pierre	Granicor Inc.	Farsundite - DS, CS	New New	31 I/16 - 03	None
14	Rivière-à-Pierre	Polycor Inc.	Farsundite - DS	Riviera	31 I/16 - 03	BEX 114
14	Rivière-à-Pierre	Polycor Inc.	Farsundite - DS	Blue Grey	31 I/16 - 03	None
14	Rivière-à-Pierre	Polycor Inc.	Quartz mangerite - DS	Boreal Green	31 I/16 - 03	BEX 333
14	Rivière-à-Pierre	A. Lacroix et Fils Granit Ltée	Gneiss - DS	Silver Mist	31 P/01 - 03	BEX 378
14	Rivière-à-Pierre	A. Lacroix et Fils Granit Ltée	Quartz mangerite - DS	Atlantic Blue	31 P/01 - 03	BEX 178, 372
14	Rivière-à-Pierre	Polycor Inc.	Quartz mangerite - DS	Galaxy Blue	31 P/01 - 03	BEX 401
14	Rivière-à-Pierre	A. Lacroix et Fils Granit Ltée	Farsundite - DS	Salmon Brown	31 P/01 - 03	BEX 366, 367
14	Rivière-à-Pierre	A. Lacroix et Fils Granit Ltée	Farsundite - DS	Deer Brown, Atlantic Green, Deer Brown D.D.	31 P/01 - 03	BM 723, 746
14	Rivière-à-Pierre	A. Lacroix et Fils Granit Ltée	Quartz mangerite - DS	Forest Green	31 P/01 - 03	BEX 349

TABLE II – Architectural stone quarries exploited in Québec during 2005 (see figure II).

SITE	LOCATION	COMPANIES	ROCK TYPE / PRODUCTS [1]	COMMERCIAL NAME	NTS - ADMINISTRATIVE REGION	TITLE
14	Rivière-à-Pierre	A. Lacroix et Fils Granit Ltée	Farsundite, quartz mangerite - DS	Forest Green, Atlantic Green, Atlantic Blue	31 P/01 - 03	CM 488
14	Rivière-à-Pierre	Granicor Inc.	Farsundite - DS, CS	Abbey Rose	31 P/01 - 03	None
14	Rivière-à-Pierre	Granicor Inc.	Quartz mangerite, farsundite - DS, CS	Nara	31 P/01 - 03	BEX 231
14	Rivière-à-Pierre	Granicor Inc.	Quartz mangerite, quartz jotunite - DS, MO, CS	Prairie Green	31 P/01 - 03	BEX 164, 165
14	Rivière-à-Pierre	Granite D. R. C. Inc. / Gesrock	Farsundite - DS, BS, CS	Canadian Caledonia, Boca Dark	31 P/01 - 03	None
14	Rivière-à-Pierre	Polycor Inc.	Farsundite - DS, CS	Caledonia Dark	31 P/01 - 03	BEX 033
14	Rivière-à-Pierre	Polycor Inc.	Farsundite - DS, CS	Caledonia Light, Caledonia Dark	31 P/01 - 03	None
15	Saint-Raymond	A. Lacroix et Fils Granit Ltée	Gneiss - DS	Rainbow	21 L/13 - 03	None
16	Charlesbourg	Construction B. M. L.	Limestone - BS	–	21 L/14 - 03	None
16	Québec	Les Pierre S.D. Enr.	Limestone - BS	–	21 L/14 - 03	None
16	Sainte-Brigitte-de-Laval	Sablière Vallière Inc.	Granit block - BS	–	21 L/14 - 03	None
17	Château-Richer	Carrière Laplante Enr.	Limestone - BS	–	21 L/14 - 03	None
18	Saint-Joachim	Ladufo Inc.	Limestone - BS	–	21 M/02 - 03	None
19	Chute-des-Passes	A. Lacroix et Fils Granit Ltée	Gneiss - DS	New Rainbow	22 E/14 - 02	BEX 377
20	Chute-des-Passes	Polycor Inc.	Gabbroic anorthosite - DS	Kodiac	22 E/06 - 02	BEX 402
20	Chute-des-Passes	A. Lacroix et Fils Granit Ltée	Gabbroic anorthosite - DS	Nordic Café	22 E/06 - 02	BNEP 986
21	Chute-des-Passes	Polycor Inc.	Farsundite - DS	Astra	22 E/04 - 02	BEX 001
22	Mistassini	A. Lacroix et Fils Granit Ltée	Monzogabbro - DS	Quincy	32 H/01 - 02	BEX 351, 352
23	Saint-Thomas-Didyme	Granicor Inc.	Quartz mangerite - DS, CS	Acajou	32 A/15 - 02	None
24	Chute-du-Diable	Granicor Inc.	Anorthosite - DS, MO, CS	Peribonka	22 D/13 - 02	None
24	Chute-du-Diable	Granicor Inc.	Anorthosite - DS, MO, CS	Peribonka	22 D/13 - 02	BEX 449
25	Saint-Henri-de-Taillon	Granit Aurélien Tremblay Inc.	Anorthosite - DS, MO, CS	Northern Black	22 D/12 - 02	None
26	Saint-Nazaire	A. Lacroix et Fils Granit Ltée	Leucogabbronorite - DS	Atlantic Black, Nordix Green	22 D/12 - 02	BEX 148
26	Saint-Nazaire	A. Lacroix et Fils Granit Ltée	Leucogabbronorite - DS	Nordix Green, Atlantic Black, Forest Black	22 D/12 - 02	None (2 quarries)
26	Saint-Nazaire	Granicor Inc.	Leucogabbronorite - DS, MO, CS	Cambrian	22 D/12 - 02	BEX 332
26	Saint-Nazaire	Polycor Inc.	Leucogabbronorite - DS, MO	Cambrian Black	22 D/12 - 02	BM 705 (2 quarries)
27	Saint-Honoré	Les Pierres Naturelles Tremblay	Limestone - BS	–	22 D/11 - 02	None
28	Bégin	A. Lacroix et Fils Granit Ltée	Quartz mangerite - DS	Atlantic Pink	22 D/11 - 02	None
28	Bégin	Granicor Inc.	Quartz mangerite - DS, CS	Granville	22 D/11 - 02	None
28	Bégin	Granit Aurélien Tremblay Inc.	Quartz mangerite - DS	Wild Pink	22 D/11 - 02	None
29	Tremblay	Carrière 500	Limestone - BS	–	22 D/06 - 02	None

TABLE II – Architectural stone quarries exploited in Québec during 2005 (see figure II).

SITE	LOCATION	COMPANIES	ROCK TYPE / PRODUCTS [1]	COMMERCIAL NAME	NTS - ADMINISTRATIVE REGION	TITLE
30	Saint-François-de-Sales	Granit Aurélien Tremblay Inc.	Quartz mangerite - DS	Spring Green	32 A/08 - 02	BEX 203
31	Chambord	Granit Aurélien Tremblay Inc.	Limestone - DS	Chambord Limestone	32 A/08 - 02	None
32	Saint-André-du-Lac-Saint-Jean	Jean-Guy Simard et Fils	Quartz mangerite - DS	Saint-André Green	22 D/05- 02	BEX 080
33	Métabetchouan	Polycor Inc.	Farsundite - DS	Canadian Violetta	22 D/05 - 02	None
34	La Tuque	Granitslab International Inc.	Gabbro - DS	Heritage Black	31 P/16 - 04	BEX 405
35	Réserve faunique des Laurentides	Granicor Inc.	Quartz mangerite - DS, CS	Laurentian Green	22 D/04 - 02	BEX 421
35	Réserve faunique des Laurentides	Polycor Inc.	Quartz jotunite - DS, MO	Laurentian Green	22 D/04 - 02	BEX 210, 228
35	Réserve faunique des Laurentides	Granit Aurélien Tremblay Inc.	Farsundite - DS	Autumn Harmony	22 D/03 - 02	BEX 225
36	Laterrière	Intergestion GL Inc.	Stromatolite dolostone block - BS	Pikauba	22 D/03 - 02	BEX 343
37	La Baie	Granicor Inc.	Farsundite - DS, CS	Polychrome	22 D/07 - 02	None
37	La Baie	Polycor Inc.	Farsundite - DS	Polychrome	22 D/07 - 02	None
37	La Baie	Sablière B Y Inc.	Granit block - BS	–	22 D/07 - 02	None
38	Grandes-Bergeronnes	Granicor Inc.	Gneiss - DS, CS	Tadoussac	22 C/04 - 09	None
39	Lac Poulin	Granijem Inc.	Granit - DS	Nordic Frost	22 F/14 - 09	BNEP 976
39	Manic 3	Granijem Inc.	Gneiss - DS	Manic	22 F/15 - 09	BNEP 975
40	Rivière-Pentecôte	Polycor Inc.	Anorthosite - DS	Nordic Black	22 G/14 - 09	BEX 155
41	Gallix	Polycor Inc.	Gneiss - DS	Gallix	22 J/02 - 09	BEX 262
42	Magpie	Polycor Inc.	Hypersthene syenite - DS	Picasso	22 I/07 - 09	BEX 419
42	Magpie	Granijem Inc.	Hypersthene syenite - DS	Anticosti	22 I/08 - 09	BEX 436
43	Hemmingford	Les Pierres naturelles Guy Lefort	Sandstone and dolomite blocks - BS	–	31 H/04 - 16	None
43	Havelock	Carrières Ducharme Inc.	Sandstone - BS	Ducharme	31 H/04 - 16	None (2 quarries)
44	Saint-Armand	NAMCA Inc.	Marbled limestone - DS	Fiore de Aqua, Sea Green	31 H/03 - 16	None
45	Stanstead	Centre du Granite Beebe Inc.	Granodiorite - DS, BS	Beverly Grey	31 H/01 - 05	None
45	Stanstead	Granit Expert Enr.	Granodiorite - DS	Diamond Grey	31 H/01 - 05	None
45	Stanstead	Granit Marlington Inc. (Industrie ASI Canada)	Granodiorite - DS, BS	Stanstead Grey	31 H/01 - 05	None
45	Stanstead	Polycor Inc.	Granodiorite - DS, MO	Stanstead Grey	31 H/01 - 05	None
45	Stanstead	Rock of Ages du Canada Ltd	Granodiorite - DS, MO	Stanstead Grey	31 H/01 - 05	None
46	Stanhope	Granicor Inc.	Granodiorite - DS, MO, CS	Snow White	21 E/04 - 05	None
47	Bromptonville	Ardobec Inc.	Slate - BS	–	21 E/05 - 05	None
47	Bromptonville	Ardoise 55 Inc.	Slate - DS, BS	–	21 E/05 - 05	None

TABLE II – Architectural stone quarries exploited in Québec during 2005 (see figure II).

SITE	LOCATION	COMPANIES	ROCK TYPE / PRODUCTS [1]	COMMERCIAL NAME	NTS - ADMINIS-TRATIVE REGION	TITLE
48	Saint-Gérard	Granit Aurélien Tremblay Inc.	Granite - DS	Birch White, Frosty Green	21 E/11 - 05	CM 170, CM 308, CM 336, CM 400, CM 521
49	Saint-Sébastien	Polycor Inc.	Granite - DS	San Sebastian Grey	21 E/10 - 05	None
50	Saint-Ferdinand	Les Carrières St-Ferdinand Inc.	Sandstone, dolomite - BS	–	21 L/04 - 17	None
51	East Broughton	Les Pierres Stéatites Inc.	Steatite, talc-carbonate rock, serpentinite - RS	–	21 L/03 - 12	None
52	Saint-Marc-du-Lac-Long	Glendyne Inc.	Slate - BS, UT	La Canadienne, La Québécoise	21 N/07 - 01	None
53	Saint-Mathieu-de-Rioux	J.-C. Ouellette	Sandstone - BS	–	22 C/03 - 01	None
53	Saint-Mathieu-de-Rioux	Les Pierres St-Mathieu Enr.	Sandstone - BS	Grès Basques	22 C/02 - 01	BEX 460
54	Mont-Lebel	Entreprises Antoine Jean Inc.	Siltstone - BS	–	22 C/08 - 01	None
54	Mont-Lebel	Les Pierres Naturelles du Québec	Siltstone - BS	–	22 C/08 - 01	None
55	Saint-Cléophas	Carrière Bernier	Siltstone - BS	–	22 B/05 - 01	None (2 quarries)
56	Maria	NAMCA Inc.	Limestone breccia - DS, DeS	Cascapedia	22 A/04 - 11	None

1 = See abbreviation list in appendix II.

TABLE III - Peat deposits, industrial minerals and stones quarries in production in Québec during 2005 (see figure III).

SITE	QUARRY, PEAT DEPOSIT	COMPANIES	DESCRIPTION OF DEPOSIT	PRODUCTS	TOWNSHIPS / NTS / ADMINISTRATIVE AREA
Asbestos (chrysotile)					
1	Bell	LAB Chrysotile Inc.	Vein system (stockwork) in serpentinized ultramafic rocks	Chrysotile asbestos fibre	Thetford / 21 L/03 / 12
2	Black Lake	LAB Chrysotile Inc.	Veins system (stockwork) in serpentinized ultramafic rocks	Chrysotile asbestos fibre	Ireland / 21 L/03 / 12
3	Jeffrey	JM Asbestos Inc.	Vein system (stockwork) in serpentinized ultramafic rocks	Chrysotile asbestos fibre	Shipton / 21 E/13 / 12
Limestone, dolomite and marble					
4	Bedford	Graymont (Qc) Inc. (Bedford division)	Corey Formation limestone	Lime, crushed limestone products for industrial use, crushed stone	Stanbridge / 31 H/03 / 16
5	Domlim #5 et #6	Graymont (Qc) Inc. (Marbleton division)	Lac Aylmer Formation limestone	Lime, crushed limestone products for industrial use, crushed stone	Dudswell / 21 E/12 / 12
6	Jolichaux	Graymont (Qc) Inc. (Joliette division)	Deschambault Formation limestone	Lime, crushed limestone products for industrial use, crushed stone	Lavaltrie / 31 I/03 / 14
7	Calco	Graymont (Portneuf) Inc.	Deschambault Formation limestone	Crushed stone, crushed limestone products for industrial use	Seigniory of Grondines / 31 I/09 / 03
8	Saint-Armand West	Omya St-Armand Ltd	Strites Pond Formation limestone	Pulverized limestone for mineral filler	Seigniory of Saint-Armand / 31 H/03 / 16
9	Saint-Armand	Carrière St.-Armand Ltd	Strites Pond Formation limestone	Pulverized limestone for mineral filler, white terrazzo granules	Seigniory of Saint-Armand / 31 H/03 / 16
10	La Rédemption	Coopératives des producteurs de Chaux du Bas-Saint Laurent	Formation Sayabec dolomitic limestone	Magnesium soil improvement	Awantjish / 22 B/05 / 01
11	Pères Trapistes	Les Calcites du Nord Inc.	Calcitic marble	White granules for artificial stone, sand for masonry, soil improvement	Pelletier / 32 A/16 / 02
12	Ciment Indépendant	Ciment St-Laurent (indépendant) Inc.	Trenton Group limestone and Black River Group limestone	Cement production	Lanoraye / 31 I/03 / 14
13	Saint-Basile-sud	Ciment Québec Inc.	Trenton Group limestone and Black River Group limestone	Cement production	Auteuil / 21 L/12 / 03
14	Ciment Lafarge	Lafarge Canada Inc.	Trenton Group limestone and Black River Group limestone	Cement production	Sault-Saint-Louis / 31 H/05 / 16
15	Soca	Agrégats Waterloo Inc.	Stukely-south Fault dolomitic marble	High grade magnesium soil improvement, terrazzo granules, decorative crushed stone	Stukely / 31 H/08 / 05
16	Saint-Ferdinand	Les Carrières St-Ferdinand Inc.	Oak Hill Group dolomite	High grade magnesium soil improvement	Halifax / 21 L/04 / 17
17	Trottier Mills	Les Carrières St-Ferdinand Inc.	Oak Hill Group dolomite	High grade magnesium soil improvement	Chester / 21L04 / 17

TABLE III - Peat deposits, industrial minerals and stones quarries in production in Québec during 2005 (see figure III).

SITE	QUARRY, PEAT DEPOSIT	COMPANIES	DESCRIPTION OF DEPOSIT	PRODUCTS	TOWNSHIPS / NTS / ADMINISTRATIVE AREA
Graphite					
18	Lac-des-Îles	Timcal Canada Inc.	Disseminated graphite flakes in crystalline limestone (± quartzite)	Graphite concentrate for refractory materials, foundry moulds, lubricants, brake linings	Bouthillier / 31 J/05 / 15
Mica					
19	Letondal	Les Produits Mica Suzorite Inc.	Lenticular alkaline intrusion with 80-85% phlogopite (suzorite variety)	Crushed mica mineral filler (plastic, joint cement, drilling mud)	Suzor / 31 O/16 / 04
Mineral clay					
20	Briqueterie Saint-Laurent	Les Briques Hanson Ltd	Formation Nicolet Shale	Door face brick	La Prairie / 31 H06 / 06
Salt					
21	Seleine	La Société canadienne de sel (Mine Seleine division)	Carboniferous salt dome	De-icing salt	Îles-de-la-Madeleine / 11 N/12 / 11
22	Puits Bécancour	Junex Inc. (Junex Solnat division)	Brines	De-icing products and dust reducers	Becancour / 31 I/08 / 17
23	Puit Saint-Angèle-de-Laval	Junex Inc. (Junex Solnat division)	Brines	De-icing products and dust reducers	Bruyere / 31 I/08 / 17
Silica					
24	Saint-Rémi d'Amherst	Société minière Gerdin Inc.	Quartzite	Silica sand for cement works	Amhurst / 31 G/15 / 15
25	Ormstown	La Compagnie Bon Sable ltée (Ormstown division)	Natural sand	Washed sand for sandblasting, foundry, mixtures for ceramic glue	Beauharnois-2 / 31 H/04 / 16
26	Saint-Canut	Unimin Canada Ltd (Saint-Canut division)	Postdam Group sandstone	Silica sand for glasswork, sandblasting, filter, ceramic	Lac-des-Deux-Montagnes-3 / 31 G/09 / 15
27	Sainte-Clotilde	Les Sables Silco Inc.	Postdam Group sandstone	Siliceous crushed stone for cement works and ferro-silicon	Beauharnois-1 / 31 H/04 / 16
28	Saint-Donat	Unimin Canada Ltd (Saint-Donat division)	Quartzite	Silica sand	Lussier / 31 J/08 / 14
29	Saint-Joseph-du-Lac	La Compagnie Bon Sable Ltée	Natural sand	Washed sand for masonry and sandblasting	Lac-des-Deux-Montagnes-1 / 31 H/12 / 15
30	Petit lac Malbaie	Sitec Inc.	Quartzite	Silica pieces for silicon metal and silica sand for silicon carbide	Charlevoix / 21 M/15 / 03
31	Saint-Bruno-de-Guigues	Temisca Inc.	Ordovician sandstone	Sand for filtration, foundry, hydraulic fracturing	Guigues / 31 M/05 / 08
32	Chromasco	Richard Capuano Inc.	Postdam Group sandstone	Siliceous crushed stone for construction, cement works and ferro-silicon	Beauharnois / 31 H/05 / 16
33	Lac Beauchêne	Les Pierres du Nord Inc.	Kipawa Formation muscovite quartzite	Quartz granules for artificial stone	Campeau / 31 L/10 / 08

TABLE III - Peat deposits, industrial minerals and stones quarries in production in Québec during 2005 (see figure III).

SITE	QUARRY, PEAT DEPOSIT	COMPANIES	DESCRIPTION OF DEPOSIT	PRODUCTS	TOWNSHIPS / NTS / ADMINISTRATIVE AREA
34	Lac Daviault	Exploration Quebec/ Labrador Inc.	Wishart Formation quartzite, Gagnon Group	Quartz granules for artificial stone	Lislois / 23 B/14 / 09
Ilmenite					
35	Lac Tio	QIT - Fer et Titane Inc.	Massive hemo-ilmenite in Havre-Saint-Pierre anorthosite complex	Titanium slags for pigment production, cast iron and crushed ilmenite (Sorel flux)	Parker / 12 L/11 / 09
Peat					
36	Saint-Bonaventure	Fafard et Frères (Saint-Bonaventure branch)	Peat	Sphagnum peat moss, growing media, composts, biofilters	Upton / 31 H/15 / 04
37	Saint-Henri-de-Lévis	Premier Horticulture (Saint-Henri branch)	Peat	Sphagnum peat moss	Seigniory of Lauzon / 21 L/11 / 12
38	Saint-Charles	Les tourbes M.L. (Saint-Charles branch)	Peat	Sphagnum peat moss Growing media	Seigniory of Lauzon and La Martinière fief (Beauchamp) / 21 L/10 / 12
39	Îsles-aux-Coudres	Tourbières Pearl	Peat	Sphagnum peat moss	Seigniory of Île-aux-Coudres / 21 M/08 / 03
40	Sainte-Marguerite	Fafard et Frères (Sainte-Marguerite branch)	Peat	Sphagnum peat moss	Racine / 32 A/16 / 02
41	L'Ascension Ouest	Tourbières Lambert (L'Ascension branch)	Peat	Sphagnum peat moss	Garnier / 22 D/13 / 02
42	Saint-Ludger-de-Milot SW	Fafard et Frères (Milot branch)	Peat	Sphagnum peat moss	Milot / 22 D/13 / 02
43	La Baie	Gazon Savard Saguenay Inc.	Peat	Sphagnum peat blocks and sphagnum peat moss	Bagot / 22 D/07 / 02
44	Rivière Ouelle	Tourbières Lambert (Rivière-Ouelle branch)	Peat	Sphagnum peat moss, growing media, bulk sphagnum moss fibers	Seigniory of Rivière-Ouelle 21 N/05 / 01
45	Saint-Alexandre	Tourbière Berger Inc. (Saint-Alexandre branch)	Peat	Sphagnum peat moss	Seigniories of Islets-du-Portage and Lachenaie / 21 N/12 / 01
46	Notre-Dame-du-Portage	Premier Horticulture (Tardif branch)	Peat	Sphagnum peat moss	Seigniory of Terrebois / 21 N/12 / 01
47	Rivière-du-Loup	Premier Horticulture (Premier branch)	Peat	Sphagnum peat moss, growing media, composts, mycorrhizes, biofilters	Seigniories of Rivière-du-Loup and Cacouna / 21 N/13-14 / 01
47	Rivière-du-Loup	Premier Horticulture (Verbois branch)	Peat	Sphagnum peat moss	Seigniories of Rivière-du-Loup and Cacouna / 21 N/13-14 / 01
47	Rivière-du-Loup	Premier Horticulture (Saint-Laurent branch)	Peat	Sphagnum peat moss	Seigniories of Rivière-du-Loup and Cacouna / 21 N/13-14 / 01
47	Rivière-du-Loup	Tourbière Michaud ltée	Peat	Sphagnum peat moss	Seigniories of Rivière-du-Loup and Cacouna / 21 N/13-14 / 01
47	Rivière-du-Loup	Les tourbes M.L. (Rivière-du-Loup branch)	Peat	Sphagnum peat moss	Seigniories of Rivière-du-Loup and Cacouna / 21 N/13-14 / 01

TABLE III - Peat deposits, industrial minerals and stones quarries in production in Québec during 2005 (see figure III).

SITE	QUARRY, PEAT DEPOSIT	COMPANIES	DESCRIPTION OF DEPOSIT	PRODUCTS	TOWNSHIPS / NTS / ADMINISTRATIVE AREA
47	Rivière-du-Loup	Tourbière Berger Inc.	Peat	Sphagnum peat moss, growing media, peat pellets	Seigniories of Rivière-du-Loup and Cacouna / 21 N/13-14 / 01
47	Rivière-du-Loup	Tourbière Henri Théberge et associés	Peat	Sphagnum peat moss	Seigniories of Rivière-du-Loup and Cacouna / 21 N/13-14 / 01
47	Rivière-du-Loup	Tourbière Omer Bélanger	Peat	Sphagnum peat moss	Seigniories of Rivière-du-Loup and Cacouna / 21 N/13-14 / 01
48	Isle-Verte, Est	Tourbière Réal Michaud et fils	Peat	Sphagnum peat moss	Seigniory of Isle-Verte / 22 C/03 / 01
49	Saint-Eugène-de-Ladrière	La tourbière Yvon Bélanger	Peat	Sphagnum peat moss	Seigniory of Nicolas-Rioux 03 / 22 C/07 / 01
49	Saint-Fabien-sur-Mer	La tourière Rio-Val	Peat	Sphagnum peat moss	Seigniory of Nicolas-Rioux 03 / 22 C/07 / 01
49	Saint-Fabien	Tourbière du Port-Pic	Peat	Sphagnum peat moss	Seigniory of Nicolas-Rioux 03 / 22 C/07 / 01
49	Saint-Fabien	Tourbière Berger Inc. (Saint-Fabien branch)	Peat	Sphagnum peat moss	Seigniory of Nicolas-Rioux 03 / 22 C/07 / 01
50	Rivière-Blanche	Permier Horticulture (Saint-Ulric branch)	Peat	Sphagnum peat moss	Matane / 22 B/13 / 01
50	Saint-Ulric	Les tourbes M.L. (Saint-Urlric branch)	Peat	Sphagnum peat moss	Matane / 22 B/13 / 01
51	Les Escoumins	Tourbières Lambert (Anse-aux-Basques branch)	Peat	Sphagnum peat moss	Bergeronnes / 22 C/06 / 09
52	La Petite Romaine	Tourbières Lambert (Saint-Paul-du-Nord branch)	Peat	Sphagnum peat moss	Ibervile / 22 C/06 / 09
53	Sainte-Thérèse Colombier	Tourbière Omer Bélanger (Ste-Thérèse branch)	Peat	Sphagnum peat moss	Betsiamites / 22 C/15
54	Pointe-Lebel	Pemier Horticulture (Sogevex branch)	Peat	Sphagnum peat moss	Manicouagan / 22 F/01 / 09
55	Port-Cartier Ouest	Les tourbes M.L. (Port-Cartier branch)	Peat	Sphagnum peat moss Sphagnum peat blocks	Babel / 22 J/02 / 09
55	Port-Cartier Ouest	Exportations Daniel Sage Inc.	Peat	Sphagnum peat moss	Babel / 22 J/02 / 09
56	Ville de Sept-Îles	Les tourbes M.L. (Sept-Îles peat branch)	Peat	Sphagnum peat moss	Letelier / 22 I/05 / 09
57	Rivière Moisie	Premier Horticulture (Sept-Îles branch)	Peat	Sphagnum peat moss	Moisie / 22 I/05 / 09
58	Saint-Jogues	Shigawake Organics Ltd	Peat	Sphagnum peat moss	Hope / 22 A/03 /11

Appendix II

Legend of abbreviations

APPENDIX II

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) or (mt: % Xx)	Bulk sampling including tonnage and grade (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 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 III

References

APPENDIX III

References

ARCHER, P., 2005 – Historique et géologie du système aurifère Roberto, projet Éléonore, Québec. *Dans* : Québec Exploration 2005, Résumés des conférences et des photoprésentations. Ministère des Ressources naturelles et de la Faune, Québec et Association de l'exploration minière du Québec; page 11.

BANDYAYERA, D. – CADÉRON, S. – ROY, P., 2005 – Correspondances stratigraphiques entre le Parautochtone et la Sous-province de l'Abitibi dans la région de Chibougamau : implications pour l'exploration minière. *Dans* : Québec Exploration 2005, Résumé des conférences et des photoprésentations. Ministère des Ressources naturelles et de la Faune du Québec et Association de l'exploration minière du Québec; page 30.

BEAUMIER, M. – KIROUAC, F., 1994 – Série de cartes géochimiques couleur. Sédiments de lac – Région de Blanc-Sablon. (SNRC 12P). Ministère des Ressources naturelles, Québec; MB 94-11, 28 pages.

BELLEHUMEUR, C. – VALIQUETTE, G., 1993 – Synthèse métallogénique du centre nord de la Gaspésie. Ministère de l'Énergie et des Ressources, Québec; ET 92-03, 73 pages.

BOILY, M. – GOSSELIN, C., 2004 – Les principaux types de minéralisations en métaux rares (Y-Zr-Nb-Ta-Be-Li-ETR) du Québec. Ministère des Ressources naturelles et de la Faune, Québec. ET 2004-01, 44 pages.

CLARK, T. – HÉBERT, C., 1998a – Guide d'exploration pour l'apatite, le nickel et le cuivre dans la région de lac à Paul (Saguenay–Lac-Saint-Jean). Ministère des Ressources naturelles, Québec; PRO 98-05.

CLARK, T. – HÉBERT, C., 1998b – Étude du gîte de Cu-Ni-Co de McNickel, suite anorthositique du Lac-Saint-Jean. Ministère des Ressources naturelles, Québec; ET 98-02.

CLARK, T. – WARES, R., 2004 – Synthèse lithotectonique et métallogénique de l'Orogène du Nouveau-Québec (Fosse du Labrador). Ministère des Ressources naturelles, de la Faune et des Parcs, Québec; MM 2004-01, 180 pages.

CLARK, T., 1994 – Géologie et gîtes de l'Orogène du Nouveau-Québec et de son arrière-pays. *Dans* : Géologie du Québec. Ministère des Ressources naturelles du Québec; MM 94-01, pages 47-65.

DOUCET, P – LAFRANCE, B., 2005 – Le potentiel aurifère en profondeur du camp minier de Cadillac. Ministère des Ressources naturelles et de la Faune, Québec; PRO 2005-01, 14 pages.

DOYON, M., 1995 – Exploration des gîtes minéraux associés aux intrusions porphyriques de la Gaspésie : nouvelles avenues. Ministère des Ressources naturelles, Québec; PRO 95-09, 6 pages.

DOYON, M., 1996 – Exploration for porphyry-related mineral deposits in the Gaspé Peninsula: new perspectives. Ministère des Ressources naturelles, Québec; PRO 96-01, 6 pages.

FOWLER, A. D. – DOIG, R., 1983 – The age and origine of Grenville Province uraniferous granites and pegmatite. Canadian Journal of Earth Sciences; volume 20, pages 92-104.

GIGUÈRE, E. – HÉBERT, R. – SHARMA, K.N.M. – CIMON, J., 2005 – Étude pétrologique des roches ultramafiques des régions de Témiscaming, du lac Bryson et de la mine du lac Renzy, Province de Grenville, Québec. Ministère des Ressources naturelles et de la Faune, Québec; ET 2004-04, 46 pages.

GOBEIL, A. – BRISEBOIS, D. – CLARK, T. – VERPAELST, P. – MADORE, L. – WODICKA, N. – CHEVÉ, S., 2003 – Géologie de la moyenne Côte-Nord. *Dans* : Géologie et ressources minérales de la partie est de la Province de Grenville. D. Brisebois et T. Clark, coordonnateurs. Ministère des Ressources naturelles, de la Faune et des Parcs, Québec; DV 2002-03, pages 9-57.

GOBEIL, A. – HÉBERT, C. – CLARK, T. – BEAUMIER, M. – PERREAULT, S., 2002 – Géologie de la région du lac De La Blache (22K/03 et 22K/04). Ministère des Ressources naturelles, Québec; RG 2002-01, 49 pages.

HARVEY, Y., 1983 – Métallogénie de l'uranium pegmatitique dans le Grenville de Québec. Thèse de Doctorat, Université Laval, 203 pages.

HÉBERT, C., 1997 – Roches mafiques-ultramafiques : nouvelles cibles dans la région du Saguenay–Lac-Saint-Jean. Ministère des Ressources naturelles, Québec; PRO 97-05, 4 pages.

HOCQ, M., 1994 – La Province de Grenville. *Dans* : Géologie du Québec. Ministère des Ressources naturelles, Québec; MM 94-01, pages 75-94.

HOCQ, M., 1994 – La Province du Supérieur. *Dans* : Géologie du Québec. Ministère des Ressources naturelles, Québec; MM 94-01, pages 7-20.

KISH, L., 1975 – Radioactive occurrences in the Grenville of Quebec: Mont-Laurier – Cabonga District. Ministère des Richesses naturelles, Québec; DP 310, 34 pages.

KISH, L. – BOURQUE, Y., 1982 – Région du lac Norman. Ministère de l'Énergie et des Ressources, Québec; DP-83-12, 1 carte annotée.

APPENDIX III

JAMES, D. T. – CONNELLY, J. N. – WASTENEYS, H. A. – KILFOIL, G. J., 1996 – Paleoproterozoic lithotectonic division of the southeastern Churchill Province, Western Labrador. Canadian Journal of Earth Sciences; volume 33, pages 216-230.

JOHNSON, W.L., 1972 – Copper-nickel sulphides in a layered ultramafic body, Renzy mine, southwestern Quebec. Unpublished master's thesis, Western Ontario University, London, Canada; 107 pages.

JUTRAS, P. – PRICHONNET, G., 2002 – Stratigraphy, depositional setting, and diagenetic history of the Saint-Jules Formation (Upper Devonian or Mississippian), a newly identified post-Acadian red clastic unit in the southern Gaspé Peninsula, Quebec. Canadian Journal of Earth Sciences; volume 39, pages 1541-1551.

LABBÉ, J.-Y., 2000 – Linéaments crustaux et potentiel de découverte de kimberlites dans l'ouest du Nouveau-Québec. Ministère des Ressources naturelles, Québec; PRO 2001-01, 8 pages.

LABBÉ, J.-Y. – LAMOTHE, D., 2001 – Évaluation du potentiel de découverte de kimberlites dans le Grand Nord. *Dans* : L'exploration minérale au Québec, de brillantes perspectives, Programmes et résumés 2001; Résumés des conférences. Ministère des Ressources naturelles, Québec; DV 2001-08, page 24.

LACHANCE, S. – PILOTE, P., 2003 – Géologie de la région du lac Sainte-Anne (22B/16-0200-0102). Ministère des Ressources naturelles, de la Faune et des Parcs, Québec; DV 2003-08, échelle 1 : 20 000.

LAMOTHE, D., 1996 – Carte géologique de la Fosse de l'Ungava. Ministère des Ressources naturelles du Québec; PRO 96-04, pages 67-74.

LAMOTHE, D., 1994 – Géologie de la Fosse de l'Ungava, Nouveau-Québec. *Dans* : Géologie du Québec. Ministère des Ressources naturelles du Québec; MM 94-01, pages 67-74.

LAMOTHE, D. – HARRIS, J.R. – LABBÉ, J-Y. – DOUCET, D. – HOULE, P. – MOORHEAD, J. – DION, C. – SAVARD, R. – MÉLANÇON, M., 2005 – Évaluation du potentiel en minéralisations de type sulfures massifs volcanogènes (SMV) pour l'Abitibi. Ministère des Ressources naturelles, de la Faune et des Parcs, Québec; EP 2005-01.

LAMOTHE, D. – LECLAIR, A. – CHOINIÈRE, J., 1998 – Géologie de la région du lac Vallard. Ministère des Ressources naturelles, Québec; RG 98-13, 32 pages.

LAPOINTE, S. – GAUTHIER, M. – NANTEL, S., 1993 – Études d'indices d'uranium, de thorium et de molybdène dans la région de Maniwaki–Grand-Remous. Ministère de l'Énergie et des Ressources, Québec; MB 93-68, 102 pages.

LECLAIR, A. – BERCLAZ, A. – LABBÉ, J.-Y. – LACOSTE, P. – SHARMA, K.N.M. – SIMARD, M., 2005 – Compilation géologique (1 : 750 000) du nord-est de la Province du Supérieur, Grand Nord du Québec. *Dans* : Québec Exploration 2005, Résumé des conférences et des photoprésentations. Ministère des Ressources naturelles et de la Faune du Québec et Association de l'exploration minière du Québec; page 35.

MADORE, L. – VERPAELST, P. – BRISEBOIS, D. – HOCQ, M. – DION, D.-J.,1999 – Géologie de la région du lac Allard. Ministère des Ressources Naturelles, Québec; RG 98-01, 37 pages.

MARCOUX, P., 1981 – Côte-Nord – Nouveau-Québec. *Dans* : Rapport des géologues résidents pour l'année 1980. Ministère des Ressources naturelles, Québec; DPV 814, page 109.

MARTIGNOLE, J. – CALVERT, A.J. – FRIEDMAN, R. – REYNOLDS, P., 2000 – Crustal evolution along a seismic section across the Grenville Province (Western Quebec). Canadian Journal of Earth Science, volume 37, pages 291-306.

MASSÉ, J.-P., 1974 – L'uranium au Québec, Ministère des Richesses naturelles, Québec; GM 51690, 88 pages.

MOORHEAD, J. – PERREAULT, S. – BERCLAZ, A. – SHARMA, K.N.M. – BEAUMIER, M. – CADIEUX, A. M., 2000 – Kimberlites et diamants dans le Nord du Québec. Ministère des Ressources naturelles, Québec; PRO 2000-05.

MOUKHSIL, A. – LEGAULT, M. – BOILY, M. – DOYON, J. – SAWYER, E. – DAVIS, D.W., 2003 – Synthèse géologique et métallogénique de la ceinture de roches vertes de la Moyenne et de la Basse Eastmain (Baie-James). Ministère des Ressources naturelles, de la Faune et des Parcs, Québec. ET 2002-06, 55 pages.

NANTEL, S., 2000 – Géologie de la région de Sainte-Anne-du-Lac (SRNC 31J/14). Ministère des Ressources naturelles, Québec; RG 2000-06, 43 pages.

NANTEL, S., 2001 – Géologie de la région de Sainte-Anne-du-Lac (SNRC 31J/14). Ministère des Ressources naturelles, Québec; RG 2000-06.

NANTEL, S. – GIGUÈRE, E. – CLARK, T., 2004 – Géologie de la région du lac Duplessis (31O/06). Ministère des Ressources naturelles et de la Faune, Québec; RG 2003-01, 51 pages.

APPENDIX III

NANTEL, S. – PERREAULT, S., 2005 – Carte préliminaire (2e édition) de la partie nord de la Ceinture centrale des métasédiments, Province de Grenville. *Dans* : Québec Exploration 2005, Résumé des conférences et des photoprésentations. Ministère des Ressources naturelles et de la Faune, Québec et Association de l'exploration minière du Québec; page 31.

NANTEL, S. – PINTSON, H., 2002 – Géologie de la région du lac Dieppe (31O/03). Ministère des Ressources naturelles, Québec; RG 2001-16, 36 pages.

PERREAULT, S. – HEAMAN, L., 2003 – Géologie et géochronologie de la Basse Côte-Nord (entre Chevery et Blanc-Sablon) dans la Province géologique de Grenville. *Dans* : Géologie et ressources minérales de la partie est de la Province de Grenville. D Brisebois et T. Clark, coordonnateurs. Ministère des Ressources naturelles de la Faune et des Parcs, Québec; pages 119-146.

PILOTE, P., 2002 – Activité magmatique et minéralisations en Gaspésie : les systèmes « épithermaux neutres » de la région du Dôme de Lemieux. Ministère des Ressources naturelles, Québec; L'exploration minérale au Québec; DV 2002-10, 60 pages.

PILOTE, P., 2005 – Métallogénie de la région du Dôme de Lemieux – partie centre-nord de la Gaspésie. Ministère des Ressources naturelles et de la Faune, Québec; ET 2004-05, 51 pages.

RIVERS, T. – MARTIGNOLE, J. – GOWER, C. F. – DAVIDSON, T., 1989 – New tectonic divisions of the Grenville Province, Southeast Canadian Shield. Tectonics; volume 8, pages 63-84.

ROY, P. – CADÉRON, S. – FALLARA, F. – CHENG, L. Z. – RIVERS, T., 2005 – Interprétations structurales et métamorphiques à travers le Front du Grenville : étapes initiales d'une modélisation 3D géo-intégrée au sud du camp minier de Chibougamau. *Dans* : Québec Exploration 2005, Résumé des conférences et des photoprésentations. Ministère des Ressources naturelles et de la Faune, Québec et Association de l'exploration minière du Québec; page 31.

SAPPIN, A.-A. – CONSTANTIN, M. – CLARK, T., 2005 – Nouvelles données géochmiques sur des indices de Ni-Cu-EGP dans le Domaine de Portneuf-Mauricie. *Dans* : Québec Exploration 2005, Résumé des conférences et des photoprésentations. Ministère des Ressources naturelles et de la Faune, Québec et Association de l'exploration minière du Québec; page 34.

SHARMA, K.N.M. – GIGUÈRE, E. – CIMON, J. – MADORE, L., 1995 – Les roches ultramafiques dans le Grenville de l'Outaouais : contexte tectonique et potentiel minéral. Ministère des Ressources naturelles, Québec; PRO 95-08.

THÉRIAULT, R. – LAMOTHE, D. – CHOINIÈRE, J., 1998 – Nouvelles zones minéralisées dans la partie est des sous-provinces de La Grande et d'Opinaca (SNRC 23E). Ministère des Ressources naturelles, Québec; PRO 98-07, 8 pages.

STEVENS, K., 1983 – Métallogénie du Dôme de Lemieux. Ministère de l'Énergie et des Ressources, Québec; DP 83-28 (Carte échelle 1 : 20 000) avec notes marginales.

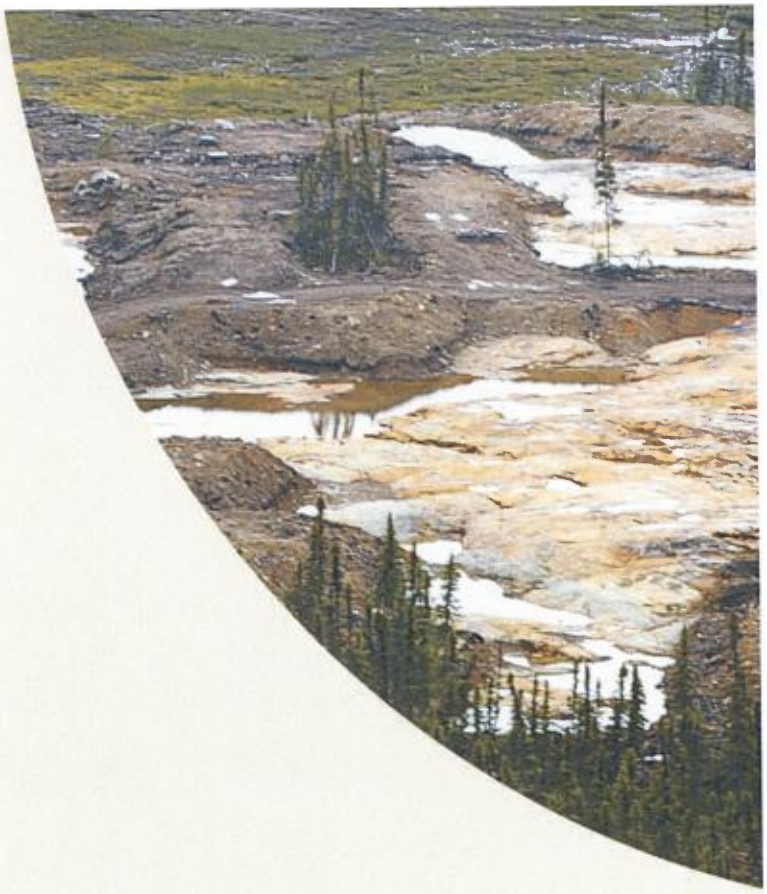
ST-ONGE, M. R. – LUCAS, S. B., 1990 – Evolution of the Cape Smith Belt : Early Proterozoic continental underthrusting, ophiolite obduction and thick-skinned folding. *In*: The Early Proterozoic Trans-Hudson Orogen of North America (J. F. Lewry et M. R. Stauffer, editors). Geological Association of Canada Special Paper 37, pages 313-351.

TOGOLA, N. – SHARMA, K.N.M., 2005 – Évaluation du potentiel en sillimanite et en muscovite au nord-est de Mont-Laurier. *Dans* : Québec Exploration 2005, Résumé des conférences et des photoprésentations. Ministère des Ressources naturelles et de la Faune, Québec et Association de l'exploration minière du Québec; page 33.

WARDLE, R. J. – JAMES, B. – SCOTT, D. J. – HALL, J., 2002 – The Southeastern Churchill Province: synthesis of a Paleoproterozoic transpressional orogen. Canadian Journal of Earth Sciences; volume 39, No 5, pages 639-663.

WARDLE, R. J. – RYAN, B. – ERMANOVICS, I., 1990 – The Eastern Churchill Province, Torngat and New Quebec Orogens. Geoscience Canada; Volume 17, pages 217-222

WARES, R. P., 1988 – Géologie et métallogénie de la région du gîte Sullipek (Gaspésie). Ministère de l'Énergie et des Ressources, Québec; ET 86-08, 94 pages.



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