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PRELIMINARY REPORT, GEOLOGY OF HARRICANA - TURGEON AREA, ABITIBI-EAST AND ABITIBI-WEST COUNTIES

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GOUVERNEMENT DU QUÉBEC

DEPARTMENT OF NATURAL RESOURCES

Honorable PAUL - E. ALLARD, Minister

MINES BRANCH

GEOLOGICAL EXPLORATION SERVICE

GEOLOGY OF

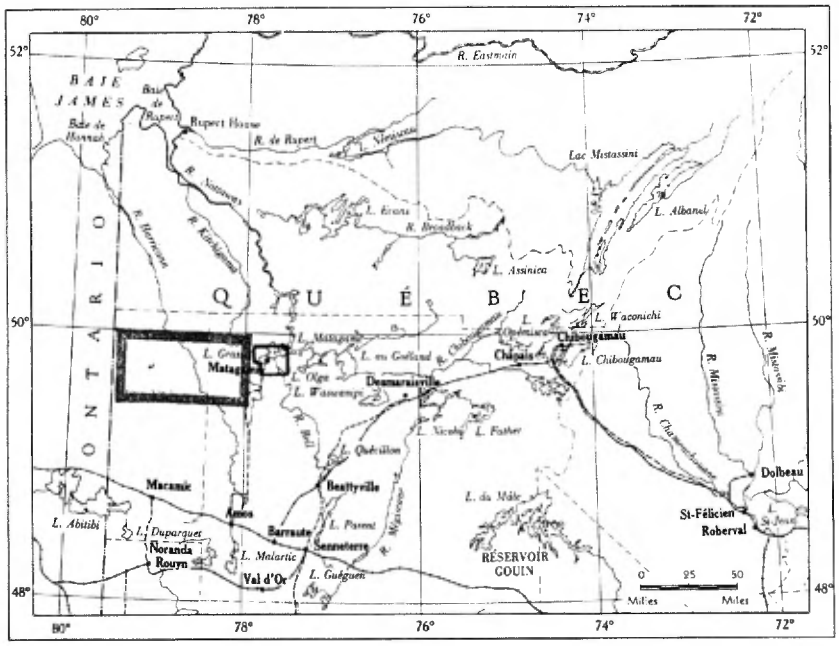
HARRICANA-TURGEON AREA

ABITIBI-EAST AND ABITIBI-WEST COUNTIES

PRELIMINARY REPORT

by

Jerome H. Remick



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Preliminary Geological Report

on

HARRICANA-TURGEON AREA

Abitibi-East and Abitibi-West Counties

by

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INTRODUCTION

The discovery of small showings of gold on Grondin creek in Beschefer township shortly after World War II brought the first large wave of prospectors into the map-area. Some trenching and geological mapping were carried out in a number of townships in the northwestern part of the map-area.

The discovery in 1957 of several sulfide bodies containing encouraging tonnages of copper and zinc with minor amounts of silver and gold (now being mined) southwest of Matagami lake prompted exploration of the adjoining Harricana-Turgeon area as a possible westward extension of this mineralization. Several low-grade gold showings, a number of copper showings, and deposits of low-grade iron ore, as well as zones of barren pyrrhotite and pyrite, have been found in outcrops and by drilling within the Harricana-Turgeon map-area. Several copper-zinc deposits, now being developed into mines have been found a few miles south of the map-area in the southern part of Joutel township.

The Harricana-Turgeon area, the center of which lies 86 miles north-northwest of Amos, was geologically mapped during the summer of 1959 by the Geological Exploration Service of the Quebec Department of Natural Resources. Traversing was shared by six two-man teams which were transported to and from fly camp and supplied by a Bell G-2 helicopter (Plate 1A). Many landing areas for a helicopter are provided throughout the entire map-area by patches of muskeg, by numerous lakes and ponds, and by river banks (Plate 1B).

Sections of This Report

Besides the geological report itself and the six geological maps, the following appendices are included:

Appendix I: Summary of each drill log in the files of the Quebec Department of Natural Resources from the map-area. The location of each drill-hole is shown on the geological maps at a scale of 1 mile to the inch and each hole is numbered.

Appendix 2: A list of geophysical surveys on the files of the Quebec Department of Natural Resources for the map-area. The location of each survey is shown on one of the township index maps included after appendix 3.

Appendix 3: A list of geological and geochemical maps in the files of the Quebec Department of Natural Resources for the map-area. The location of each survey is shown on the township index maps included after this Appendix.

A list of data received between Sept. 1, 1966, and Jan. 15, 1968, is included as addenda in this report.

Location of Area

The map-area, including the western half of the area mapped by Longley (1943) (not re-mapped by our party but reproduced on the accompanying maps), is bounded to the south and to the north respectively by latitudes 49°30' and 50°00' and to the east and west by longitudes 78°00' to 79°31' (the Interprovincial boundary). It comprises an area of approximately 2,320 square miles in Abitibi-East and Abitibi-West counties. It includes all or major parts of the following 28 townships: Aloigny, Bapst, Beschefer, Brouillan, Carheil, Casa-Berardi, Desmazures, Dieppe, Douay, Enjalran, Estrées, Estrades, Fénelon, Gaudet, Grasset, Joutel, La Gauchetière, Lanoullier, La Peltrie, Massicotte, Montgolfier, Orvilliers, Puiseaux, Raymond, Récher, Sainte-Hélène, Subercase and Valrennes.

Access to Area

Air Transportation

Aviation companies located near Senneterre, Val-d'Or, Amos, Rouyn, Macamic, La Sarre, and Watson lake in Quebec and Moosonee in Ontario provide transportation into the area. Suitable landing places for aircraft are provided by Harricana river, the many lakes in the area and a few places on Turgeon and Wawagosic rivers. Both these last-mentioned rivers, while they are wide enough to accommodate air craft, contain many boulders and, during a dry season in the summer, contain very little water. Most of the lakes do not have

large angular boulders, as much of the area is covered by a thick layer of clay. Boulders occur in some of the lakes just north of the map-area where the veneer of glacial sediments is much thinner.

Roads

The area is accessible from Amos by the new all-weather road (Plate 1B) leading to the town of Matagami. The road passes through Douay township in the southeast corner of the map-area. A branch goes westward to Harricana river and the town of Joutel, a few miles south of the map-area.

Water Transport

Harricana river provides an excellent water route for motor canoe. There are no falls or dangerous rapids from latitudes 47°05' to the north part of Montgolfier township. Several falls and rapids from the north part of Montgolfier township to the north part of the map-area necessitate short portages.

The southwest part of the map-area may be reached by road from La Sarre to a point on Turgeon river near Val Paradis, in Paradis township, and then by canoe along Turgeon river. There are about five well-cut portages and some areas of boulder rapids along Turgeon river before reaching the west side of Corset island in the southwest corner of the map-area.

Turgeon and Wawagosic rivers provide excellent water routes and contain only a few small rapids or falls necessitating short portages. The water level may become low during a summer's dry spell and thus expose many areas of boulders.

Théo, Samson, Adam, Angle, Puiseaux (formerly Tannin creek), Détour, and Brouillan rivers and Grondin (formerly Twining) creek are traversable in a prospector canoe. Log jams, boulder rapids, and small falls occur in places in these rivers. The water level is usually higher in these smaller rivers than in parts of Wawagosic and Turgeon rivers.

Field Work

Mapping Methods

Traverses were made at one-half-mile intervals across most places where areas of rock outcrop were believed to be present. Most of the map-area was traversed by

helicopter and most isolated ourcrops were examined from the ground. Unfortunately, time did not permit examination of two small areas of rock outcrop in the northwest corner of the Quésagami sheet and these areas are indicated on the geological map supplementing this report.

Rock Exposure

Most of the area is covered by muskeg and has no outcrop. Nearly all of the outcrop, except for a little which occurs in the northwest part of the area, occurs on small to large hills usually covered in part by birch and poplar, along the shore of many of the rivers (Plate 2A, 2B) and streams, and along a few of the larger lakes.

Geological Contacts

The limited number and uneven distribution of rock outcrops in the map-area make it difficult to separate accurately most zones of metamorphosed volcanic and sedimentary rock on the accompanying geological maps. In most instances, these rock types are separated on the map by number rather than geological contact.

Meaningful geological contacts between other rock types are in many cases difficult to draw because of the scarcity of outcrop. However, airborne magnetic maps were of some aid in outlining geological contacts between rock types of contrasting magnetic intensity.

Ridges of Magnetic Anomalies

The ridges of the more prominent magnetic anomalies taken from airborne magnetic maps furnished by the Federal government and various mining companies are shown on the geological maps accompanying this report. The ridges represent the location of the highest magnetic intensity of an anomaly.

GENERAL DESCRIPTION OF AREA

Topography

The map-area lies within the clay belt and is part of a plain sloping gently northward toward James bay. It has an average elevation of about 1,000 feet. The terrain is very flat (Plate 3A) and much of it is covered by muskeg with small areas of spruce. A few hilly areas of rock, a wide, elevated, northwesterly trending zone of sand, and smaller hills of glacial sediment rise above the general level.

There are very few lakes in the eastern two-thirds of the map-area. Lakes are more abundant and larger in the northwest part of the area. Many of the lakes, except those in the northwest part of the area, are shallow and represent the unfilled center of a patch of muskeg.

The Dieppe, Cartwright and Gaudet hills rise about 400 feet or more above the general surface. The Carheil, Enjalran, Lanoullier (Plate 3A, 3B), Valrennes and Sainte-Hélène hills and the Montgolfier ridge rise to about 150 feet above the general level. Smaller hills, usually covered in part by birch and poplar, occur in a few other places throughout the map-area.

A broad, elevated, northwesterly trending zone of sand (mega-esker), with one or more ridges and many long steep-sided kettle lakes, rises about 100 feet above the general surface, crosses the entire map-area and continues into the adjacent areas to the north and to the south. It is flanked by a sand plain on both sides, is from 1 to 3 miles wide, and roughly parallels the course of Harricana river at 1 to 10 miles to the east.

Drainage

Surface waters drain northward in the area and eventually empty into Harricana river, which flows directly into Hannah bay. The water level in the small streams rises and falls rapidly during the summer with each rainfall, making some rapids very dangerous. Ice scars on trees along some of the streams are in places up to 14 feet above the low water level.

DESCRIPTIVE GEOLOGY

General Geology

The map-area lies within the Superior geological province. Most of the map-area is underlain by the western end of the Chibougamau-Matagami zone of steeply dipping and metamorphosed volcanic, sedimentary, and basic to intermediate intrusive rock. Most of these rocks are in the greenschist facies except those in Enjalran township and the west part of Carheil township, and those near granitic intrusions which belong to the albite-epidote amphibolite facies. Small plutons of granite, diorite, and gabbro occur in places in the map-area. Hybrid mixtures of these latter intrusive rocks with their hosts occur in places (Plate 7B). Dikes of porphyry containing quartz, feldspar or hornblende, or all three occur in a few places in the area. Four major northeasterly and northerly trending dikes of gabbro have been

traced discontinuously across the map-area and into the adjoining areas. Smaller dikes of diabase and gabbro were noted in other places.

The bedrock structure trends westerly and in some places a few degrees north of west. Local divergences from this trend occur around some of the larger intrusive bodies and also near Harricana river in the north parts of Joutel and Valrennes townships where much of the structure parallels the river.

The metallic mineralization in the Harricana-Turgeon area is similar to that in Matagami and Joutel and may be divided as follows:

1) Zones of massive to disseminated sulfides containing one or more of the following minerals: pyrrhotite, pyrite, chalcopyrite, bornite, malachite, magnetite, sphalerite, ankerite, calcite, and quartz. Assays may show small amounts of gold and silver.

2) Quartz veins containing one or more of the following minerals: gold, chalcopyrite, pyrite, pyrrhotite, sphalerite, galena, molybdenite, calaverite, ankerite, tourmaline.

3) Specularite-magnetite iron-formation

Metamorphosed Volcanic and Associated Intrusive Rocks

Metamorphosed Lava (1)

Pillowed and non-pillowed metamorphosed lavas of the greenschist facies underlie much of the map-area. The rock is greenish in most of the area, but is black in Carheil and Enjalran townships. It ranges in grain size from fine to medium. Equigranular texture predominates, but porphyritic, spherulitic, variolitic, and especially amygdaloidal textures were noted throughout the area. The pillowed lavas are generally fine grained and the non-pillowed lavas are fine and medium grained. The composition throughout the individual pillows is in general homogeneous. However, pillows on Corset Island in Dieppe township have a core consisting of white variolites and a green rim (Plate 4A, 4B).

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(1) The term "metamorphosed" should prefix the names of most rock types in this report. However, it is omitted for the sake of euphony.

TABLE OF FORMATIONS

CENOZOIC	Recent		Muskeg peat
	Pleistocene		Varved clay, boulder clay, silt sand, gravel boulders
UNCONFORMITY			
PRECAMBRIAN		Northeasterly striking basic dikes	Diabase, gabbro
		North-south-striking basic dikes	Diabase, gabbro Porphyritic diabase
		Younger acidic to basic rocks and contact zone rocks	Pegmatite Oligoclase granite Diorite Gabbro Hybrid diorite
		Dikes	Quartz-porphyry Quartz-feldspar porphyry Feldspar porphyry Quartz-feldspar-hornblende porphyry Feldspar-hornblende porphyry
		Metamorphosed sedimentary rocks	Biotite schist Graywacke, argillite arkose, iron-formation, quartzite, conglomerate, slaty shale, graphitic argillite
		Metamorphosed volcanic and associated intrusive rocks	Amphibolite Rhyolite, intermediate and basic lava Tuff, agglomerate Flow breccia Metagabbro, metadiorite

The rock units listed above are not necessarily in the order of their formation.

The lava in the Lenoullier hills appears to be the freshest in the map-area. The rock is intermediate in composition and well jointed and is cut by a large number of porphyry dikes containing various proportions of quartz, feldspar, and/or hornblende phenocrysts. The freshness of the rock, the excellent jointing, and the large number of porphyry dikes make this small area of rock outcrop unique in the map-area.

The lava in the west part of Carheil township and in much of Enjalran township is black. Much of it is massive and fine or medium grained. Some of it shows well-preserved pillow structures. Parts of some outcrops show rusty stains and narrow fractures filled with pyrite, pyrrhotite and/or chalcopyrite. The degree of metamorphism of the volcanic rocks in this area appears to be somewhat higher than that in the rest of the map-area.

Narrow structures containing epidote, pyrite, pyrrhotite, and/or chalcopyrite were noted in some outcrops in Dieppe hills and Cartwright hills.

Amphibolite

Amphibolite consisting of small alligned prismatic grains of hornblende and equant grains of plagioclase was noted on Wawagosic river in Puiseaux township, on the top of the bend in Turgeon river in La Peltrie township, and on Turgeon river in Enjalran township. The outcrops on Turgeon river in La Peltrie township show elongated pillow structures and in places the pillows are elongated and narrow to such a degree as to resemble lenticular banding. The rim of the pillow is richer in hornblende and less resistant to weathering, so that a slight depression is left on the weathered surface.

The outcrops in Puiseaux township show no pillow structures; they are cut by quartz veins, and are coarser grained than those in La Peltrie township. These outcrops are believed to be recrystallized volcanic rocks.

Rhyolite

Rhyolite and related acidic lava generally occur within a few main areas in the region rather than as isolated outcrops throughout the map-area. Tuff and agglomerate and in places sedimentary rock outcrop with or near the main areas of rhyolite. Rhyolite was noted in three main areas: along the west shore of Harricana river in Valrennes and Joutel townships, westward in the Valrennes hills and in the south part of Joutel township; in the central parts of La Gauchetière and Sainte-Hélène townships in the Sainte-Hélène hills; and along the large westward bend in Wawagosic river

in the central part of Brouillan township. A few isolated outcrops of rhyolite were noted elsewhere in the map-area.

The rock is massive, fresh, brittle, hard and fine grained, and generally has a ring to it when struck with a hammer. The fresh surface is black or dark gray and much of it shows a conchoidal fracture. The weathered surface is light gray to white. Small quartz phenocrysts occur in some of the outcrops. Sulfide minerals replace some of the quartz phenocrysts in Joutel township. Chert, arkose and a few layers of black cherty-magnetite iron-formation occur with the rhyolite in the Valrennes hills.

Tuff and Agglomerate

Narrow layers of tuff occur throughout the map-area. Good exposures of tuff and agglomerate occur on the shore of Wawagosic river in the central part of Brouillan township and farther north in Lanoullier township, along Adam river, and along Harricana river in the northern parts of Gaudet and Bapst townships.

Pyroclastic rocks were noted in a number of drill-holes, mainly in Estrées, La Peltrie, Joutel and Desmazures townships.

The best and most typical exposures of tuff and agglomerate are those along Wawagosic river (Plate 5A). The rock is composed of subangular to subrounded fragments of various types of volcanic rock embedded in a dark green matrix. It contains 50% fragments ranging in size from less than 1 mm. to about 6 inches. No bedding is shown and the fragments are not sized.

The tuff and agglomerate outcrops on the shore of Harricana river in Bapst township are bedded, the bedding being due to a distinct change in grain size. There is no sorting of grain gradation within the beds. The rock consists of layers from 1 foot to over 15 feet thick of angular volcanic fragments from 3 cm. to 1 mm. embedded in a green matrix alternating with fine-grained green cherty beds.

Flow Breccia

Thin layers of flow breccia are interlayered with pillow lava in a number of places. Some consist of a greenish matrix with more acidic and resistant white angular to rounded fragments, many of which contain rounded grains of quartz.

Metagabbro and Metadiorite

Metadiorite and metagabbro occur in many places interlayered with volcanic rock. The scale of mapping and the limited rock exposure prevent separation of most of this type of rock from the volcanic rocks. Undoubtedly, they are both about the same age.

The outcrops along Harricana river in Bapst and Gaudet townships are schistose, greenish and medium grained, and some of them have a diabasic texture.

Black hornblende gabbro, usually containing accessory amounts of pyrite,and dark gray to black lava are closely interlayered in Carheil and Enjalran townships. Some of the gabbro contains appreciable quantities of magnetite and it is more magnetic than the northeasterly trending gabbro dikes.

Metamorphosed Sedimentary Rock

Feldspathic Sedimentary Rocks

On the accompanying geological maps, several large zones of sedimentary rock have been outlined by geological contacts from surface outcrop and diamond drill data. Sedimentary rocks probably make up a large part of these zones, but volcanic rocks undoubtedly occur within these zones.

The sedimentary rocks within the map-area are feldspar rich and many of them are of the graywacke type (Plate 6-A). They vary in grain size from fine to very fine, are usually well sized, and show good to poor bedding. Grain gradation is often shown. The rocks are lightly metamorphosed but still retain their sedimentary characteristics.

Most of the observed outcrops of sedimentary rocks are along the shores of rivers and lakes. Drilling has intersected a larger proportion of sedimentary rocks than observed surface outcrops.

Conglomerate was noted at the northward bend in the Détour river very close to the Interprovincial boundary. The rock consists of well-rounded and elongated pebbles of various types of volcanic rocks, quartz, and granite embedded in a green matrix. The pebbles are from 1 to 6 inches long, averaging about 3 inches, and from $\frac{1}{4}$ to $1\frac{1}{4}$ inches wide. A 5- by 12-inch boulder was the largest present. Granite pebbles constitute about 5% of the pebbles and are medium grained and white, and contain 20% to 25% quartz and 1% chloritized mafics. The granitic pebbles tend to be more spherical in shape, whereas the volcanic pebbles are lenticular, but all are elongated parallel to the schistosity.

Pyrrhotite and pyrite, in places spheroidal, are in many cases associated with sedimentary rocks containing graphite.

Iron-formation

High easterly trending magnetic anomalies indicate two zones of iron-formation which cross the map-area. However, outcrops were noted only in two general areas, and most information comes from drill cores.

The south zone is indicated on the accompanying geological maps by a line showing the highest part of the anomaly. Geological contacts are not drawn because of lack of outcrop.

The iron-bearing rocks in both zones are fine grained and dark gray to black on fresh surface, are in places layered and jointed, and consist of various amounts of magnetite, specularite, quartz, and feldspar. Accessory amounts of cubical pyrite are present in many places.

Bedding is best developed in the iron-bearing parts of the formation where laminae rich in magnetite or specularite or both occur interlayered with laminae containing very little iron. The laminae are from 1 mm. to about 5 mm. in thickness. Red jasper was noted in a few drill cores from the iron-formation just east of Harricana river.

Arkose, siltstone and argillite are associated with the iron-bearing parts of the formation. Quartzite was noted in Desmazures township.

Small plutons of granite and diorite intrude the northern zone of iron-formation.

Drilling in Montgolfier township has indicated that the iron-bearing part of the formation occurs in two main bands each from 500 to 800 feet thick and separated by about one mile. An average of about 25% iron was noted.

Drill core from the iron-formation in the east part of Raymond township is similar to that in Montgolfier township, but the tonnage of iron is much smaller.

Narrow bands of magnetite and black chert are interlayered with the volcanic rocks in the Dieppe hills and the Valrennes hills, and on Harricana river in the north part of Bapst township.

Biotite Schist

Biotite schist of relatively uniform composition and appearance outcrops along Turgeon river over the interval in the northeast part of Dieppe township and the southeast part of Récher township from 4 to 12 miles north of Corset island. Small intrusives of oligoclase granite occur in a few places. The area, believed to be mainly underlain by biotite schist and granite, was outlined with the aid of areomagnetic maps over a magnetic low.

A system of rectangular-intersecting quartz veins occurs in most outcrops (Plate 5A, 5B). The veins are more resistant than the biotite schist and form resistant ridges on the weathered surface of almost every outcrop. Granitic veinlets were noted in some of the more northerly outcrops. The quartz and granitic veinlets are from $\frac{1}{4}$ to 3 inches wide, at least several feet in length and rise up to 5 inches above the weathered surface of the biotite schist. They are usually from one to several feet apart. One set of veins usually parallels the structural trend of the biotite schist and the other cross-cuts it.

The biotite schist is fine grained, light to medium gray, equigranular, and fairly uniform in appearance. It contains 5% to 15% biotite, feldspar, quartz, accessory amounts of cubical pyrite, and, in places, a certain amount of hornblende and garnet. Biotite flakes are less than a millimeter in diameter and are usually uniformily distributed throughout the rock.

Porphyry Dikes

Porphyry dikes of unknown age outcrop throughout the map-area and cut the volcanic rocks, but not the younger acidic to basic rocks. They are most abundant in the Lanoullier hills where the dikes consist of phenocrysts of quartz, feldspar, and/or hornblende. In this area the dikes are from one foot to 20 feet wide but a few are only an inch wide. They are massive and contain about 10% phenocrysts from 3 mm. to 5 mm. in diameter. The weathered surface of the rock is buff to white and the fresh surface is dark gray. The 1-inch-wide dikes are black to fine grained, and the phenocrysts are well developed. The contact between the dikes and the adjacent volcanic rocks is sharp and the porphyry dikes show a chill zone.

Younger Acidic to Basic Rocks and Contact Zone Rocks

Coarse-grained Hornblende Gabbro

Coarse-grained hornblende gabbro outcrops along Turgeon river in La Peltrie township. The outcrops are

massive, rounded, in places broadly jointed and in a few instances contain small lenticular or rounded segregations of prismatic hornblende grains and finer-grained gabbro and diorite.

The rock consists of 20% to 40% hornblende, large plagioclase laths, and in places a few cubes of pyrite, which are embedded in the hornblende.

Where fresh, the plagioclase laths are light smoky gray and show good albite twin lamellae and good cleavage. Where altered, they are sugary white. Microscopic examination shows that some of the plagioclase is zoned. Plagioclase is white on weathered surface and more resistant than hornblende. The laths are rectangular and from 8 mm. to 30 mm. long and 2 mm. to 6 mm.wide. They show a fairly good preferred orientation within any spot in an outcrop, but the direction is variable from one part of an outcrop to the other. The laths appear to have flowed around small segregations. Small aggregates of slightly chloritized hornblende occur interstitial to the plagioclase and may well represent recrystallized primary pyroxene.

Gabbro and Diorite

Massive, medium-grained hornblende gabbro and diorite, in places having a weak diabasic texture, outcrop in the Gaudet hills in Gaudet township and westward. The rock contains 20% to 50% hornblende, up to 2% quartz, much of which shows a blue tint, and an accessory amount of magnetite, which in a few places is concentrated to such an extent that it makes the rock more magnetic than the late northeasterly trending gabbro dikes.

Westward toward Brouillan lake the rock grades into an oligoclase granite having 15% hornblende and 25% quartz. Resistant hornblende and quartz give the rock a rough weathered surface.

Gabbro, somewhat similar to that in the Gaudet hills, occurs along the shore of Turgeon river in several places in Récher township. In some outcrops dikes of gabbro cut the lava. A variation from diorite with 20% hornblende through gabbro with 80% hornblende occurs in an outcrop in the northern part of Récher township.

Hybrid Diorite

A small mass of hybrid hornblende diorite outcrops along the shore of Turgeon river in La Peltrie township next to a mass of granite. The rock is massive, and medium grained, and contains between 25% and 40% hornblende. It has a smooth weathered surface. Hornblende-poor phases cut hornblende-rich phases in several places. Schlieren and basic inclusions (possible altered volcanic and sedimentary rocks) are common.

Hybrid diorite of variable texture and composition occurs in the northern part of Brouillan township. In places it is coarse grained.

Hybrid diorite and diorite occur at the margins of the granite in Valrennes township.

Intrusive Breccia

A few outcrops of intrusive breccia were noted in several places along the shore of Turgeon river in La Peltrie township (Plate 7A) and at the north end of Angle river. Angular blocks of medium-grained igneous rocks consisting of various proportions of hornblende and feldspar and a few blocks of recrystallized volcanic and sedimentary rock occur in a dioritic matrix. The blocks make up over 80% on the outcrop and, in some places, over 90%.

Granite

Small masses of granite outcrop in La Peltrie, Brouillan, Beschefer, Carheil, Enjalran, Lanoullier, Puiseaux, Orvilliers, La Gauchetière, Grasset, Récher, and Montgolfier townships. The zone of granite which underlies the area south of the map-area and west of Harricana river projects into the southern part of the map-area in Valrennes township. A large zone of granite and gneissic rocks underlies most of Grasset township and continues northward.

The granite within the map-area is, in general, massive to lightly schistose, medium grained, and white. Hand specimens show 15% to 35% quartz, a small proportion of biotite and/or hornblende and, in places, accessory amounts of magnetite sphene, epidote, and pyrite. Much of the weathered surface is rough owing to resistant hornblende and quartz. Diorite and especially hybrid diorite occur at the outer margins of some of the granitic masses.

Pegmatite

Very little pegmatite was observed. Small dikes and veins of quartz-feldspar pegmatite, in places containing some biotite, cut the various rock types that underlie the Gaudet Hills area.

Diabase, Gabbro Dikes

Four dikes of gabbro striking in a northerly or northeasterly direction cross the map-area and continue into the adjoining map-areas. Outcrops of most of the dikes are not abundant but their trend is well shown on aeromagnetic maps.

The rock is massive, fresh, hard, medium grained and dark gray to black. Plagioclase and pyroxene with accessory amounts of magnetite and pyrite can be seen in hand specimen. The rock has a rough rusty-brown weathered surface and a black fresh surface. Exfoliation was noted in several places. All outcrops show two sets of joints, the better developed set being normal to the strike of the dike. The dikes range from several inches to over 400 feet in width and in many places form resistant ridges up to 100 feet in height.

The chill zone of the gabbro dike is black and fine grained, but within a few feet the grain size becomes 2 mm. to 3 mm., depending on the thickness of the dike. The rock has a diabasic texture, but this is not too well shown in the central parts of the coarser-grained dikes. Some angular inclusions of wall-rock were noted in a few of the dikes.

Pleistocene: Lacustrine and Outwash Deposits

Varved clay, boulder clay, silt, sand, gravel, and boulders cover most of the area. Drillers report several feet of boulders and sand in places between the clay and the bedrock. Silt and, in places, sand and boulders overlie also the clay (Plate 8-B).

A strong south-southeasterly lineation in the surficial sediments and the drainage is apparent on the surface of the area in the northern and particularly the northwestern part of the area. The southern part of the area is devoid of this lineation. It is tentatively believed that the southern part of the area was overlain by water in which glacial sediments were deposited, whereas the northern part of the area, which shows the strong lineation, was overlain by ice. The boundary between these two zones is shown on the geological maps by long arrows trending about N.160°E. Sand, silt, gravel, boulders and boulder clay predominate in the sediments in the

northern part of the area and varved clay and boulder clay in the southern part of the area. Several exposures of varved clay were noted in the north part of the area in Massicotte and La Peltrie townships (Plate 8B).

A broad, northwesterly trending esker just east of Harricana river including and flanked by many narrow steep-sided esker lakes crosses the entire map-area and continues into the map-areas to the north and to the south. The eskers and zone of sand are about 2 miles wide and, in places, over 100 feet high. The esker was covered by vegetation in the map-area and, therefore, it was not possible to note the type of sediments it contained. Several excellent cross sections are now available on that part of the esker lying somewhat south of the map-area on the Amos-Matagami highway.

The esker noted by Wilson (1940) at Mistaouac (Mistawak) lake continues northward into the southern part of the map-area and terminates at Newiska lake. It is outlined in the map-area by small glacial lakes with sandy bottoms.

The clay cover ranges in thickness from 35 feet to over 200 feet. The clay is either massive or varved and, in places, contains a few rounded boulders. Varved clay was noted at a number of places along Turgeon river in Massicotte and La Peltrie township (Plate 8A) and, in a few places, along Wawagosic river. The varves are from 5 mm. to 25 mm. in thickness, alternate in color from light to dark gray, and are constant in width for many feet along strike. The light gray layers are coarsest, carry rounded particles 6 mm. to 18 mm. in diameter and are usually narrower than the darker gray layers. The dark gray layers are very fine grained and carry no larger particles. The clay is well consolidated and breaks into blocks with parting along the interface between the layers and into two directions normal to the bedding, which fact results in a step-like pattern along the clay band.

Glacial striae occur on outcrops throughout the area, the dominant trend being from N.150°E. to N.160°E. Southwesterly trending striae were noted in a few outcrops near the eastern margin of the map-area.

Many boulders and slabs of fossiliferous buff Peleozoic limestone were observed in the moraine along the easterly flowing part of Turgeon river and in a few places in the clay along the banks of Angle river. Round boulders of buff sandstone and a round boulder of oölitic hematite and jasper were also noted.

Recent: Muskeg Peat

Muskeg peat covers much of the map-area. During post-glacial time there has been a gradual filling in of the lakes in the central parts of the muskeg by peat. All stages of this process can be seen in the map-area.

STRUCTURAL GEOLOGY

Schistosity

The general trend of schistosity is about east-west. Local divergences occur around intrusive bodies and in the rocks near Harricana river in Joutel township.

Shear Zones

Narrow shears zones were noted throughout the map-area. The majority strike east-west parallel to the trend of schistosity.

Folding

The volcanic and sedimentary rocks are tightly folded and steeply dipping. The scarcity of outcrop, the lack of distinct horizon markers, and the difficulty in determining the top in a sequence of lavas militate against placing the fold axes accurately. Several possible anticlinal and synclinal axes have been placed on the geological map on the basis of pillow-top determinations.

Jointing

Good jointing occurs in the granitic rocks (Plate 7A) throughout the map-area and in the sedimentary rocks along the shore of Harricana river in Montgolfier township. Many of the outcrops of volcanic rocks show two sets of joints. Quartz occurs along a few of the joints in the granite in La Peltrie township and in the sedimentary rocks in Montgolfier township.

ECONOMIC GEOLOGY

The metallic mineralization in the Harricana-Turgeon area is similar to that in Matagami and Joutel and may be divided as follows:

1) Zones of massive to disseminated sulfides containing one or more of the following minerals: pyrrhotite, pyrite, chalcopyrite, bornite, magnetite, sphalerite, ankerite, calcite, and quartz. Assays may show small amounts of gold and silver.

2) Quartz veins containing one or more of the following minerals: gold, chalcopyrite, pyrite, pyrrhotite, sphalerite, galena, molybdenite, calaverite, ankerite, tourmaline.

3) Specularite magnetite iron-formation.

Quartz veins with one or more metallic minerals may occur alone or with zones of massive sulfides. The locations of quartz veins with metallic minerals observed during our mapping programme are described in the following section on mineralized rock outcrops,and their location is shown on the geological maps.

Zones of massive to disseminated sulfides constitute the best potential source for a minable deposit. In nearby Matagami and Joutel, the minable sulfide zones are associated with rhyolite and pyroclastic rocks. The same association is probably the most favorable in the map-area. Drilling in the map-area (see Appendix 1) has encountered a number of zones of barren pyrite, pyrrhotite and/or magnetite, many of them associated with sedimentary rocks in some places containing graphite.

Large tonnages of low-grade magnetite-specularite iron-formation occur in the area, but they are not economic under present conditions as grinding to minus 325 mesh is usually necessary for liberation to give a grade of about 65% iron. Over 1.5 billion tons of iron ore having about 25% iron has been outlined by drilling in Montgolfier township by Atlin-Ruffner. The ore is low in sulfur and phosphorus. The iron minerals consist of about 10% specularite and 90% magnetite. Smaller deposits have been outlined through drilling in Raymond, Casa-Berardi and Dieppe townships.

Chalcopyrite, bornite, malachite, pyrite, pyrrhotite, gold, magnetite, and specularite were noted by the writer in rock outcrops and drill core. Calaverite, a gold telluride, was reported by Thurber in his report on the Grondin (Twining) Creek gold showing in Beschefer township.

Mineralized Rock Outcrops

A brief description of each rock outcrop containing metallic minerals is given in this section. The number of each mineralized occurrence corresponds to the number appearing on the geological map. A description of metallic minerals noted in drill cores is covered in Appendix I and therefore is not given in this section.

M-1 Grasset and Subercase townships. Slightly silicified, north-south-trending shear zone in lava with chalcopyrite in small irregular patches replacing the rock and in stringers traversing it (Longley, 1943, page 28).

M-2 Grasset township. Small shear zones in lava which are sparsely mineralized with pyrite, and in some places with chalcopyrite. Considerable carbonate occurs locally in some zones (Longley, 1943, page 27).

M-3 Grasset township. East-southeasterly trending shear zone at the contact of granite and lava extensively silicified and mineralized with pyrite (Longley, 1943, page 28).

M-4 Sainte-Hélène and La Gauchetière townships. East-west-trending silicified shear zones occurring in acidic or fragmental lava and containing disseminated pyrite (Longley, 1943, page 27). Pyrite and pyrrhotite and in places chalcopyrite and magnetite in andesite, rhyolite, and pyroclastic rock in a number of places in the Saint-Hélène hills (Noranda Mines Exploration Co. Ltd).

M-5 Montgolfier township. Specularite-magnetite iron-formations with accessory cubical pyrite. Two iron-formations, about 1 mile apart, with a width from 500 feet to 1,800 feet averaging 800 feet,occur.

M-6 Montgolfier township. Massive pyrite replacing black cherty rock. Some pyrite disseminated and some pyrite along fractures in volcanic and in black cherty rock. One lens of cubical pyrite 1 inch wide and 4 inches long.

M-7 Valrennes township. Several small zones of pyrite, pyrrhotite, arsenopyrite and minor chalcopyrite in dark chert and rhyolite(?). One zone is 40 feet long and 10 feet wide and contains a number of small lenses rich in sulfides and also disseminated pyrite. Pyrite also occurs along fractures. Several layers of magnetite iron-formation outcrop in the same area.

M-8 Estrées township. Ankerite and cubical pyrite in a shear zone. 5% to 10% disseminated ankerite in the wall-rock for 25 feet on each side of the shear zone.

M-9 Joutel township. (Location is on the west shore of Harricana river about 2,000 feet south of the map-area on the property of Equity Exploration Ltd.). Pyrite, chalcopyrite and pyrrhotite as fracture fillings and replacement in altered volcanic rock. 2% to 4% (in places up to 25%) disseminated sulfides in rock outcrop. Maximum of 1% chalcopyrite visible.

M-10 Brouillan township. Small amounts of pyrite, chalcopyrite, sphalerite, and galena in fractures in quartz veins in schistose lava. Small amounts of sphalerite in volcanic rock.

M-11 Brouillan township. A little cubical pyrite in fractures in schistose lava. Some disseminated ankerite.

M-12 Brouillan township. Ankerite, up to 35% in places, disseminated in agglomerate. Veinlets of ankerite and quartz. Some disseminated pyrite. A few grains of chalcopyrite in quartz veins.

M-13 Brouillan township. Disseminated ankerite, 20% in places and a few quartz-ankerite veins. Lenses of massive and cubical pyrite in a zone 100 feet long and 1 to 5 feet wide at 105° in silicified wall-rock on the south shore of Wawagosic river. The sulfide lenses contain up to 70% pyrite, are 1 to 3 feet long and 1 to 2 feet wide and mostly occur at the eastern end of the zone. Pyrite appears to replace the rhyolite. Cubical pyrite cuts and surrounds the massive pyrite. The showing was first noted by prospector Eddie Jourdain who staked it for Anglo-Huronian Mines in 1947. An assay showed no gold, 0.04 oz. of silver per ton and 0.01% copper.

M-14 Beschefer township. Quartz vein (about 150 feet long and 1 foot wide) on cliff face with 2 lenses (5 inches by 4 inches and 3 inches by 2 inches) of chalcopyrite. From 5% to 10% ankerite and a little black tourmaline occur in small masses and disseminations in wall-rock. Dr. J.B. Thurber, geologist for Anglo-Huronian Ltd., noted calaverite occurring as small silver-white to golden yellow sheets, masses, and fibers within a quartz vein, and in the center and along the border of masses of chalcopyrite. Small amounts of gold were noted in assays of Anglo-Huronian Ltd.

M-15 Gaudet township. Quartz-ankerite veins in sheared diorite with small amounts of pyrite and chalcopyrite. A few specks of native gold in places in the quartz veins. Trenching has shown the mineralized zone to extend over an interval of more than 100 feet.

M-16 Gaudet township. Fine-grained pyrite and pyrrhotite and a few grains of chalcopyrite in fractures in lava. Carbonate in places. An assay by Sogemines Mines Ltd. showed no gold.

M-17 Joutel township. Pyrite, pyrrhotite, and chalcopyrite in small amounts in siliceous water-lain tuff (noted by Dome Exploration (Quebec) Ltd. on Map GM-11539 in our files).

M-18 Dieppe township. A few grains of pyrite, pyrrhotite and chalcopyrite were noted in a number of places along the odd thin fracture in some outcrops of volcanic rock in the Dieppe hills.

M-19 Carheil township. Areas of rust and gossan in lava in a number of places in this general area.

M-20 Carheil township. Up to 1% pyrrhotite and a little chalcopyrite along fractures in diorite. A little molybdenite and chalcopyrite in volcanic rock (Selco Exploration Co. Ltd.).

M-21 Enjalran township. Gossan of pyrrhotite, pyrite and magnetite in metasedimentary rocks.

M-22 Massicotte township. Gossan in silicified volcanic rock 1% to 2% pyrrhotite along fractures.

M-23 Enjalran township. Chalcopyrite and pyrite in a 2-foot-wide and 40-foot-long east-west shear zone in gabbro. Veins of quartz and ankerite parallel schistosity. Five trenches, each about 6 feet long, 2 feet wide and 2 feet deep, have been cut across the zone. Some blasting and diamond drilling has been carried out.

M-24 Enjalran township. 1% pyrite and chalcopyrite along a few narrow fractures in lava. 2% disseminated sulfides in places in lava. Zone of about 20 feet long and 12 feet wide with 1% to 3% pyrite.

M-25 Enjalran township. Cubical pyrite and chalcopyrite along fractures and disseminated cubical pyrite in wall-rock. Quartz fills network of small fractures. Some large quartz veins in lava.

M-26 Massicotte township. 1% pyrite and a little chalcopyrite along fractures in dark metasedimentary rock. Rock is chloritized, silicified and sheared. Three sulfide zones at 110° each 2 feet to 3 feet wide and 20 feet long.

M-27 La Peltrie township. Gel of iron rust in small seapage on north shore of Turgeon river on an outcrop of gabbro and sedimentary rock. Up to 1% cubical pyrite in the rock outcrop.

M-28 La Peltrie township. A zone of chalcopyrite, pyrrhotite, and pyrite in diorite about 300 feet inland from the south shore of Theo river.

M-29 Enjalran township. Large schistose boulders of metagabbro on the south shore of Quesagami lake containing pyrite and a little chalcopyrite.

M-30 Raymond township. 1- to 3-foot-wide northeasterly striking shear zone in volcanic rock with small lenses of pyrite along schistosity. Finely disseminated pyrite occurs for about 2 feet into the wall-rock along both sides of the zone. Quartz veins parallel the zone and massive calcite occurs within the zone.

M-31 Carheil township. Pyrite in narrow lenses in a 3-foot-wide zone of fracturing and disseminated in the wall-rock in acidic lava.

M-32 Valrennes township. 2% to 5% pyrrhotite, pyrite, and minor chalcopyrite, along fractures in rhyolite and pyroclastic rock.

M-33 Beschefer township. Cubical pyrite, a few grains of chalcopyrite, and some ankerite along several shears and fractures in lava.

M-34 Brouillan township. Up to 20% disseminated rhombs of ankerite in several outcrops in this area.

M-35 Carheil township. A shear zone 3 feet wide and 140 feet long with disseminated cubical pyrite, quartz, and ankerite. Ankerite is disseminated in the outcrop.

M-36 Carheil township. Small amounts of cubical pyrite, pyrrhotite, and in places a few grains of chalcopyrite along schistose planes in light gray siliceous lava.

M-37 Carheil township. 3% to 20% disseminated rhombs of ankerite and a few quartz-ankerite veins in sheared rhyolite(?).

M-38 Lanoullier township. Iron rust in blue clay in creek that flows into Wawagosic river.

M-39 Dieppe township. Up to 1% disseminated pyrite and a little chalcopyrite in a few fractures in lava.

M-40 Enjalran township. Up to 1% pyrite and chalcopyrite in some fractures in lava in several outcrops in this area.

M-41 Enjalran township. A little disseminated pyrite in lava. Quartz veins with biotite, pyrite, chalcopyrite and quartz crystals.

M-42 La Peltrie township. Cubical pyrite and a few grains of chalcopyrite in a few small lenses along fractures in feldspar porphyry.

M-43 Lanoullier township. Rusty water in a small spring flowing on rock outcrop.

M-44 Lanoullier township. 1- to 2-inch-wide mineralized zone with 15% pyrite and a little chalcopyrite in amphibolitized lava.

M-45 Montgolfier township. Pillowed lava cut by quartz vein containing 5% to 15% ankerite rhombs in fractures and along edges of quartz vein and a little cubical pyrite.

M-46 Montgolfier township. Rusty-weathering quartzite.

M-47 Beschefer township. Ankerite and about 1% cubical pyrite in wall-rock.

M-48 Beschefer township. Calcite, quartz, cubical pyrite and chalcopyrite along a few fractures in lava.

M-49 Beschefer township. Cubical pyrite and 2% to 3% ankerite disseminated in volcanic rock.

M-50 Beschefer township. 1% to 15% cubical pyrite in thin lenses along planes of schistosity in agglomerate.

M-51 Beschefer township. Disseminated ankerite and quartz-ankerite in diorite (North showing of Anglo-Huronian Ltd.).

M-52 Beschefer township. Quartz-ankerite veins in diorite.

M-53 Bapst township. Up to 2% pyrite, pyrrhotite and chalcopyrite along fractures and disseminated in rock.

M-54 Bapst township. 1/2% pyrrhotite and minor chalcopyrite disseminated and along fractures in volcanic rock.

M-55 Bapst township. Up to 2% pyrite, pyrrhotite, and minor chalcopyrite disseminated and in fractures in lava. One rusty zone is 200 feet by 20 feet. A few large quartz veins.

M-56 Bapst township. Quartz-ankerite veins and some disseminated ankerite in lava in a number of outcrops in this area. A few small lenses of cubical pyrite.

M-57 Bapst township. Up to 1% pyrrhotite and pyrite and a few grains of chalcopyrite in rusty zones and along fractures in lava.

M-58 Bapst township. Disseminated ankerite and quartz-ankerite veins with accessory pyrite in gabbro and lava.

M-59 Enjalran township. Mineralized zone in volcanic rock at the contact with diabase dike consisting of lenticular rusty areas each about 5 feet by 7 feet. The zone is about 75 feet long and 10 feet wide and parallels the strike of the diabase dike.

M-60 Bapst township. Five-inch-wide quartz vein with about 10% small black tourmaline needles in an outcrop of lava on island. From 2% to 5% ankerite disseminated in the lava and in other outcrops in this area.

M-61 Beschefer township. Small amounts of pyrite, chalcopyrite, tourmaline, and ankerite fill fractures in quartz veins. Most of the quartz veins are in diorite but a few are in volcanic rock. 5% to 10% ankerite disseminated in diorite and in places in volcanic rock.

M-62 Enjalran township. In trench, mineralized zone, 10 feet long and 2 inches wide, of pyrite, pyrrhotite and chalcopyrite in lava.

M-63 Gaudet township. Up to 1% pyrite and in places a little chalcopyrite disseminated and along fractures in schistose lava.

M-64 Enjalran township. Up to 50% pyrrhotite and pyrite in places in quartzite and conglomerate. Adjacent diorite contains little to no mineralization. (Kesagami Syndicate).

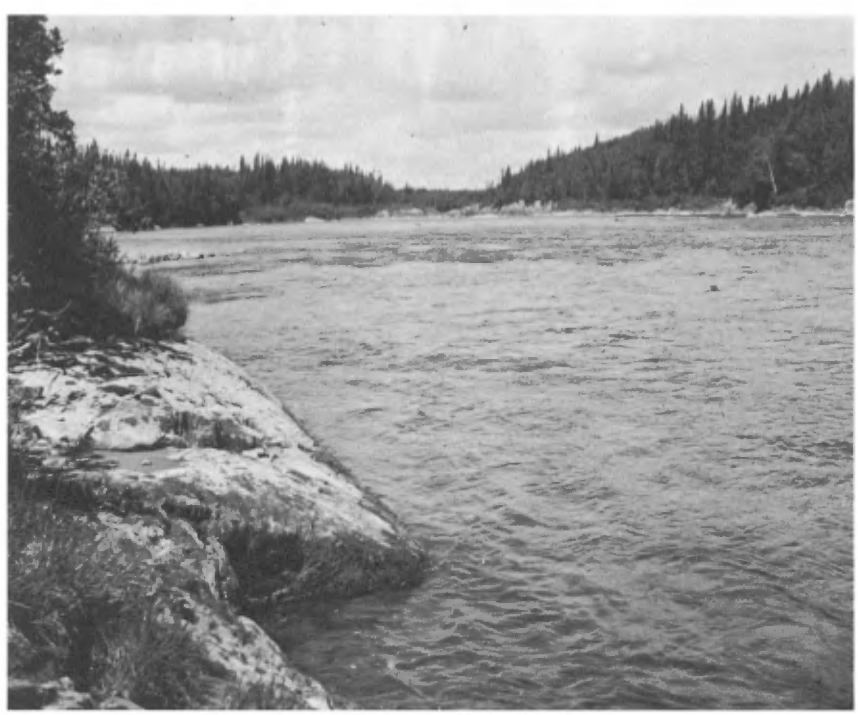
PLATE I

A – Bell G-2 helicopter with 18-foot freighter canoe on the shore of Harricana river in Bapts township. Low water in Harricana river during mid-summer has exposed some of the muddy river bottom.

B – Helicopter in boulder rapids on Detour river about ¼ mile west of Massicotte township and the Interprovincial boundary. Low outcrop of graywacke can be seen on the shore to the rear of the helicopter.

PLATE II

A – Looking southward along a narrow gorge in Harricana river in the northwest corner of Gaudet township. Rock outcrops are larger than normal.



B – Volcanic rock along the shore of Harricana river in Gaudet township. Size of rock outcrop is typical.

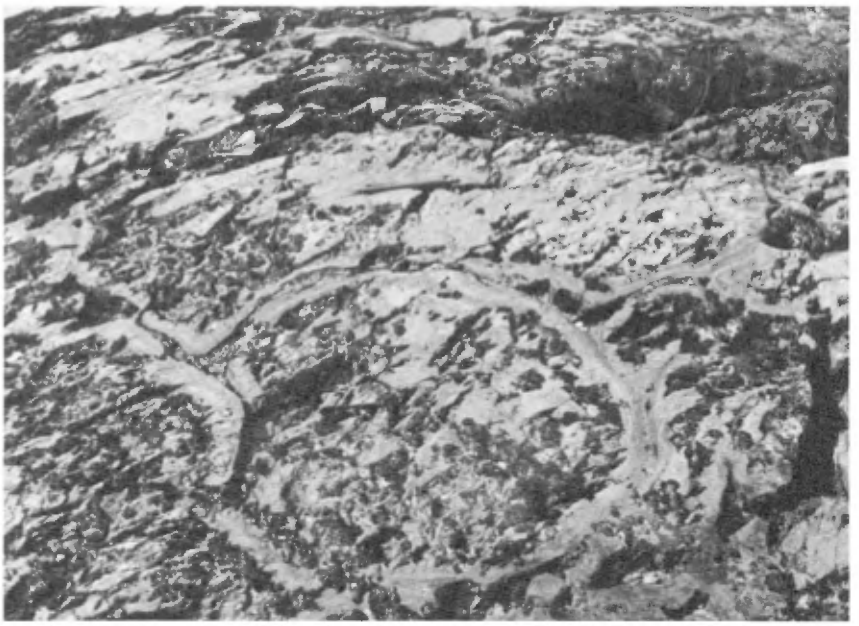
PLATE III

A – View looking south from the south part of Lanoullier hills with Dieppe hills in the background. The majority of the area is flat except for a few local hills.

B – Lanoullier hills (volcanic rock) and Dent lake in Lanoullier township.

PLATE IV

A -- Variolites in pillowed lava along the shore of Turgeon river at the northeast tip of Corset island in Dieppe township. The pencil between the pillows in the center of the photo gives the scale.



B – Pillowed lava on the north side of Corset island. Pencil in the upper part of the photo gives the scale.

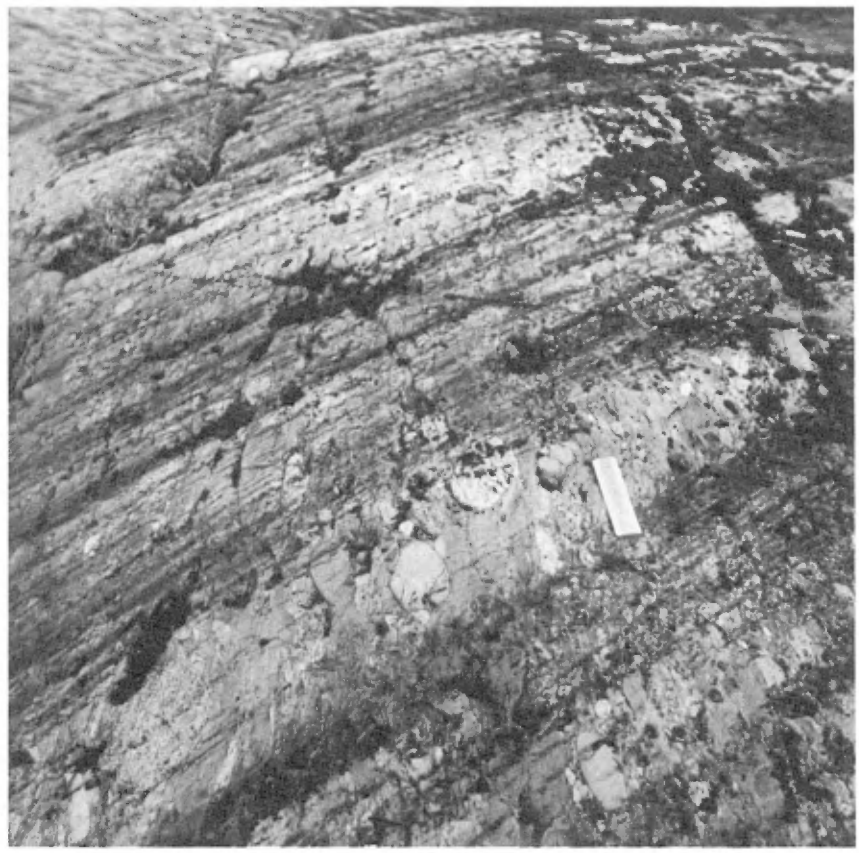
PLATE V

A – Agglomerate on the shore of Wawagosic river in Brouillan township.

B – Differentially weathered fine-grained biotite schist cut by quartz veins on the east shore of Turgeon river in the north part of Dieppe township.

PLATE VI

A – Quartz-filled fractures in graywacke on Detour river about ¼ mile west of Massicotte township and the Interprovincial boundary.



B – Schistose conglomerate along Detour river in the west part of Massicotte township close to the Interprovincial boundary. Schistosity parallels the length of the ruler. Glacial striae are almost normal to the length of the ruler. Detour river is in the background.

PLATE VII

A – Well-jointed hornblende-biotite granite on the north shore of Turgeon river in La Peltrie township.

B – Intrusive breccia consisting of rounded blocks of igneous, metamorphic, volcanic and a few sedimentary rocks cemented by granitic to dioritic material.

PLATE VIII

A – Varved clay on the north shore of Turgeon river in La Peltrie township.

B – Well-bedded sand on the north shore of Turgeon river in La Peltrie township.

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APPENDIX I

SUMMARIES OF DIAMOND DRILL CORE LOGS

A summary of each drill log from within the map-area submitted to the Quebec Department of Natural Resources prior to September 1, 1966, is given below. The drill logs are numbered separately for each township and their locations are shown on the accompanying geological maps. The summaries have been made by the writer without interpretation or change of the original terminology

The Department of Natural Resources has no drill logs in its files from Estrades, Fénelon, Gaudet, and Lanoullier townships.

The circular part of the drill-hole symbol used on the geological maps indicates the surface location of the hole. The straight line part of the symbol shows the direction in which the hole was drilled. A circle without the straight line indicates a vertical hole. Where holes are closely spaced it was necessary to add a short 90° bend between the circular part of the drill-hole symbol and the straight line part in order to show the data.

A filled circle indicates that some pyrite or pyrrhotite or both were noted in the log. A line through the circle indicates that graphite was noted. Various minerals such as chalcopyrite, sphalerite, or magnetite when present in amounts greater than "trace" or "minor" are indicated by an appropriate abbreviation next to the symbol.

All drill-hole locations were taken from company maps. Most have good topographic or survey tie points. However, some are tied in only to claim posts, and the best way to find these holes is to relate them to the actual claim posts on the ground.

The Mineral Deposits Service of the Quebec Department of Natural Resources would be pleased to receive any drill logs from within the map-area which are not included in this compilation. These logs would then be available to aid any company working in the map-area in the future.

The government file number is given before the summary for each hole. A bracket around a file number indicates that the drill log itself was not available to the public as of September 1, 1966, as the claims were still held by the company (copies of the logs cannot be made available to the public before the expiry date of the claims). However, in all cases, the company concerned very generously granted

the author permission to present a summary of the drill log for this report. A bracket around the township named indicates that the data are filed in an adjacent township.

A file number not within brackets indicates that the log referred to, and the company map showing its location, may be purchased from the Department at the following rates:

Reports and logs	$0.15 per page
Maps	$1.08 per square foot if the Department of Natural Resources does not have a negative; $0.08 per square foot if the Department of Natural Resources has a negative.

Reproduction of maps for which the Department does not have a negative is done by an independent firm which bills the customer directly.

The file number, the name of the township, the name of the company, and a description of the documents desired (map and/or logs) should be sent to:

Department of Natural Resources,
Mineral Deposits Service,
1620 Boulevard de l'Entente,
Quebec 6, Que.

DIAMOND DRILLING DATA FOR ALOIGNY TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
1	30°	55°	173'	173'	Ranworth Explorations Ltd. (1959) Hole A-1 GM-9294 Hole abandoned in overburden.
2	210°	54°	395'	222'	Ranworth Explorations Ltd. (1959) Hole A-2 GM-9294 Overburden of sand to 165' and then boulders and gravel to 222'. Lamprophyre at 222'-224'. Soft, schistose and, in places, sericitic and chloritized graywacke (bedding 20° to core axis) dipping 75°S. with two sections 10' and 8' having respectively 10% and 50% cubical pyrite from 224' to 348'. Graphite in argillaceous rock with 10% to 25% pyrite in layers and blebs at 348'-365'. Graywacke and arkose with 10% pyrite and traces of graphite at 365'-388'. Two assay samples showed no gold. Drill core left at drill-hole.
3	90°	90°	350'	155'	Ranworth Explorations Ltd. (1959) Hole A-3 GM-9294 Fine-grained, gray-green, bedded iron-formation with homogeneous magnetite content and a few higher-grade zones. The iron content as calculated from the specific gravity of the core is from 12.45% to 27.8%. A 6" quartz vein with pyrite crystals at 166'. Dips in iron-formation are 50° to 60°. Core left at drill-hole.
4	180°	50°-58°	753'	183'	Westfield Minerals Ltd. (1960) (Estate Project Ltd.) Hole 2 GM-10519 (filed under Sainte-Hélène Township in government files) Fine- to medium-grained gray tuff throughout; 4 interlayers of graphitic tuff 3'-18' thick to 466'. Some graphitic streaks in gray tuff. 20%-70% pyrrhotite with minor pyrite and a trace of chalcopyrite in the graphitic layers. A few patches or disseminations of pyrite and pyrrhotite and a few specks of chalcopyrite in places in the gray tuff. Schistosity is at 40° to the core axis.

DIAMOND DRILLING DATA FOR BAPST TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
1	180°	50°	158'	5'	Selco Exploration Co. Ltd. (1958) Harricana Baker Hole 1 GM-7965 Layered quartzite, in a few places with interlayers of fine-grained, dark, siliceous argillite. Talcose partings and some carbonate veinlets in quartzite. Rocks are fractured, brecciated, and silicified. 2%-40% pyrrhotite (usually 2%-10%) and, in places, pyrite over much of core. Sulfides appear to replace the quartzite.
2	180°	45°	143.5'	11'	Selco Exploration Co. Ltd. (1958) Harricana Baker Hole 3 GM-7965 Layered quartzite and some argillite. In one place the two rock types are interlayered. 5%-15% sulfides, mostly pyrrhotite and some pyrite as replacements and disseminations in quartzite throughout the core. 1' of 75% sulfides, nearly all pyrrhotite. Magnetite is present in places.
3	66°	50°	63'	63'	Selco Exploration Co. Ltd. (1958) Harricana Baker Hole 4 GM-7965 Hole abandoned in overburden.
4	66°	85°	117'	50'	Selco Exploration Co. Ltd. (1958) Harricana Baker Hole 5 GM-7965 Quartzite with indistinct layering and containing up to 15% pyrrhotite as streaky disseminations parallel to layering and irregular replacements at 50'-73.5'. Layered gray-green argillite with a few thin quartzite layers at 73.5'-117'. 3.5' section of altered green intrusive rock with 10% magnetite in small crystals and 3% fine pyrrhotite. Layering 30° to 40° to core axis.

5	180°	45°	419'	118'	Selco Exploration Co. Ltd. (1958) Harricana King Hole 1 GM-8796 Gray, altered greenstone with a few specks of pyrite at 118'-290'. Altered sedimentary rock and greenstone with a few pyrite cubes at 290'-340'. Interlayered greenstone, graywacke and graphitic argillite; 15%-20% cubical pyrite in certain layers at 340'-419'. Graphitic argillite with 40%-50% cubical pyrite at 383.5'-389.3'. A graphitic zone with rounded pyrite grains in layered quartz-pyrite replacement at 391'-393'.
6	180°	48°	410'	95'	Selco Exploration Co. Ltd. (1958) Harricana King Hole 2 GM-8796 Altered greenstone with a few disseminated cubes of pyrite in places and some barren quartz veins. Thick layer of pyrite at 250'.
7	180°	45°	369'	65'	Selco Exploration Co. Ltd. (1958) Harricana Love Hole 1 GM-8796 Light gray to greenish-gray highly altered lava with many breccia zones and some narrow layers of dark chert in tuff at 65'-280'. Brecciated sections have inclusions of dark, fine-grained chert. Pyrite in a few narrow layers and disseminated grains at 65'-200'. 10%-20% pyrite at 200'-238'. Five layers of 50%-90% pyrite from 6' to 3' thick at 244'-279'. 1% chalcopyrite at 127'-128'. Carbonaceous tuff interlayered with feldspar-quartz rock, rhyolite, and some black chert at 280'-369'. Pyrite in massive layers as follows: 30% pyrite at 280'-300'; 85% pyrite at 300'-310.5'; 15% pyrite at 310.5'-321.5'. Minor pyrite at 321.5'-369'.
8	180°	54° to 38°	847'	65'	Selco Exploration Co. Ltd. (1958) Harricana Love Hole 2 GM-8796 From 65' to 466' light gray streaky andesite with talc carbonate alteration; overall 5%-10% quartz-carbonate stringers and irregular patches in widths up to 2"; 1/2%-5% disseminated pyrite as single cubes and stringer-like aggregates of cubes. At 419' pyrite content increases with sections of massive pyrite and considerable massive graphite, graphite slips, and graphite stringers.

DIAMOND DRILLING DATA FOR BAPST (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
8	180°	54° to 38°	847'	65'	Selco Exploration Co. Ltd. (1958) (Cont.) At 466'-591' quartz carbonate replacement zone with 1%-3% scattered pyrite cubes and some graphite. At 591'-847' sheared andesite recemented by quartz-carbonate. 2% pyrite cubes at 591'-658'. Only small amounts of disseminated pyrite as cubes and stringers at 658'-847'. At 479.5' to 484', and 488' to 502' massive graphite and 10%-20% pyrite. At 570' to 574' massive pyrite and graphite. Several other zones of 1' to 2' of 10%-30% pyrite and, in a few, graphite. "The alteration and mineralization revealed by the hole is indicative of a major break, showing conditions similar in many respects to Kerr-Addison."
					BESCHEFER TOWNSHIP
1	0°	45°	418'	160'	Selco Exploration Co. Ltd. (1960) Pat Group Hole 1 GM-18058 Overburden is chiefly clay. Fine- to very fine-grained, gray to light gray, soft, generally massive crystalline limestone. Company geologists believe the crystalline limestone to be either a product of intense carbonatization or a zone of limestone forming the north part of the iron-formation. Lineation occurs in some sections and is at 20°-30° to the core axis. A moderate dip to the north is inferred. Pyrrhotite and pyrite occur disseminated throughout the core and small amounts of pyrite occur along some fractures, in places with a few grains of chalcopyrite. Quartz veinlets and talcose slips are local. Pyrrhotite occurs in places (maximum of 5% pyrrhotite) as blebs parallel to the foliation in the limestone. The drill core is stored at the campsite approximately 2000' west-northwest of the drill site.

2	80°	35°	35'	0'	J.W. Baker (1961) Hole B-1 (GM-12765) Massive diorite, in places silicified, carbonatized, fractured, and cut by quartz stringers. Traces of gold noted in an assay.
3	80°	60°	36'	0'	J.W. Baker (1961) Hole B-2 (GM-12765) Diorite, in places cut by veins and stringers of quartz. Some pyrite over 6" of core. Trace of gold in some assays.
4	80°	40°	29'	0'	J.W. Baker (1961) Hole B-3 (GM-12765) Diorite, in places cut by stringers and veins of quartz. A trace of gold in an assay.
5	80°	60°	40'	0'	J.W. Baker (1961) Hole B-4 (GM-12765) Diorite in places cut by veins and stringers of quartz. Traces of gold in 2 assays.
6	80°	40°	13'	0'	J.W. Baker (1961) Hole B-5 (GM-12765) Massive diorite
7	55°	55°	180'	0'	Twining Creek Property (1963) Hole T-1 (GM-14049) Diorite to 175'. Andesite at 175'-180'. Diorite is carbonatized and contains disseminated pyrite and chalcopyrite. Quartz stringers and tourmaline occur in places. Nine assays (2' to 3' of core each) show nil to 0.05% copper, nil to 0.19 oz./ton gold, and nil to 0.12 oz./ton silver.
8	85°	65°	210'	0'	Twining Creek Property (1963) Hole T-2 (GM-14049) Diorite, carbonatized and with disseminated pyrite and chalcopyrite in places. Quartz-carbonate, quartz, and quartz-ankerite stringers in places. A 6" wide quartz-tourmaline vein with pyrite. Six assays (2' to 3' of core each) showed nil to 0.01 oz./ton gold and nil to 0.12 oz./ton silver.
9	45°	60°	187'	0'	Twining Creek Property (1963) Hole T-3 (GM-14049) Diorite, in places carbonatized. Quartz stringers and in places disseminated pyrite and chalcopyrite. Tourmaline and pyrite in a 2'-wide quartz vein. Three assays (2' of core each) showed nil to 0.02 oz./ton gold and 0.02 to 0.16 oz./ton silver.

DIAMOND DRILLING DATA FOR BROUILLAN (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
1	20°	45°	486'	67'	Selco Exploration Co. Ltd. (1959) Oscar Group Hole 1 GM-18061 From 67' to 213.5' fine- to medium-grained, light gray, equigranular diorite containing about equal amounts of plagioclase and pyroxene. At 213.5'-247' strongly magnetic altered black ultrabasic (soapstone?) containing talc, in places magnetite, and traces of chalcopyrite. At 247'-276.5' an altered, green, fine-grained, non-magnetic ultrabasic. At 276.5'-277.8' dark chert with traces of graphite and 10%-15% pyrite in contorted, irregular bands. At 277.8'-486' non-magnetic talc schist with many narrow bands of quartz-carbonate, in places containing cubes and blebs of pyrite. Inclination of foliation to core axis is 75°.
2	27°	45°	312'	64'	Selco Exploration Co. Ltd. (1959) Oscar Group Hole 2 GM-18061 At 64'-267' light gray, fine- to medium-grained, equigranular, non-magnetic diorite with equal amounts of feldspar and pyroxene. At 267'-280.4' altered diorite consisting of light gray talcose rock grading down into light greenish-gray talc schist with 75° inclination to core axis. At 280.4'-285.7' graphitic argillite; pyrite usually within layers of quartz. At 285.7'-308' green talcose argillite with narrow bands of quartz and white carbonate throughout, some massive pyrrhotite and a trace of chalcopyrite. At 308'-312' altered, fine-grained intrusive with feldspar, talc, and mica.
3	15°	60° to 54°	448'	137'	Juma Mining & Exploration Ltd. (1965) Hole J.B.1 GM-17164 Rhyolite, acidic pyroclastic rock, and a little andesite at 137'-348' and 404'-414.5'. Gabbro at 348'-404' and 414.5'-448'. A little fine sphalerite and pyrite and minor chalcopyrite in rhyolite and pyroclastics. Mineralization is restricted to rhyolite and pyroclastics.

					Massive pyrrhotite cut by later pyrite-filled fractures in andesitic matrix at 223'-236.5'. Sphalerite occurs in places as fracture fillings. Three assays showed .01%-.02% copper and no nickel, zinc or gold. Lineation in gabbro is at 55° to core axis. Location of holes J.B.1 through 4 are shown on geophysical map (GM-17163)
4	15°	60° to 52°	603'	164'	Juma Mining & Exploration Ltd. (1965) Hole J.B.2 GM-17164 Agglomerate and tuff at 164'-367'; interlayered dark slaty sedimentary rock with pyroclastics at 367'-500'. Feldspathic dacite or feldspar porphyry and some diorite at 500'-603'. Pyrrhotite and pyrite in dark sedimentary rock at 441.6'-451'. One assay showed 0.05% copper and 0.01% nickel. Schistosity at 65° to core axis.
5	15°	60°	457'	106'	Juma Mining & Exploration Ltd. (1965) Hole J.B.3 GM-17164 Acidic pyroclastic rocks over most of core. Altered diorite with some pyroclastics near the bottom. Zones of heavy pyrrhotite, some pyrite, minor chalcopyrite and possibly sphalerite at 237.9'-242.5'. Pyrite in places throughout core. Schistosity is at 45° to the core axis.
6	15°	60°	492'	141'	Juma Mining & Exploration Ltd. (1965) Hole J.B.4 GM-17164 Diorite and andesite, with very little pyrite and chalcopyrite in a few places along fractures, at 141'-349'. Acidic tuff and dark bedded sediments at 349'-356' and 380.5'-492'. Pyritized, dark, graphitic sediments at 356'-380.5'. Two assays of graphitic zone showed no zinc. Bedding in tuff is at 70° to core axis.
					CARHEIL TOWNSHIP
1	0°	45°	47'	47'	Selco Exploration Co. Ltd. (1958) Harricana Jig Hole 3 GM-8650 Hole abandoned in overburden

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
2	0°	50°	43'	43'	Selco Exploration Co. Ltd. (1958) Harricana Jig Hole 4 GM-8650 Hole abandoned in overburden.
3	0°	85°	152.7'	33'	Selco Exploration Co. Ltd. (1958) Harricana Jig Hole 5 GM-8650 Gray to greenish gray andesite with good diabasic texture and some variation in grain size. A 2.5' zone of massive pyrite in silicified andesite at 73.5'-75'. Pyrrhotite in narrow layers and disseminated up to 10% in places at 129'-150'. Much of the core for this area is stored in Selco's core shack on the east shore of Lac Gagnon in Raymond township.
4	340°	85°	129.3'	36'	Selco Exploration Co. Ltd. (1958) Harricana Jig Hole 6 GM-8650 Andesite, in places silicified. Narrow layers of pyrrhotite or pyrite or disseminated pyrite occur throughout the core, generally in silicified zones. Four zones from 0.5' to 3' long of 50% to massive pyrrhotite and/or pyrite. A few blebs of chalcopyrite. spheroidal pyrite noted in two places. Sulfides believed to replace volcanic rock. Pyrite possibly later than pyrrhotite.
5	0°	45°	143.5'	21'	Selco Exploration Co. Ltd. (1958) Harricana Queen Hole 1 GM-18273 Silicified andesite with possibly some dacite in places with a trace to 3% pyrrhotite, disseminated pyrite, and a trace of chalcopyrite. A 10'-zone of jasper, weakly graphitic chert, and volcanic rock with streaky, contorted bands of pyrrhotite and traces of chalcopyrite at 131.5'-141'. At 133'-137', 50% sulfides. Chalcopyrite and pyrite are later than pyrrhotite and associated with quartz "threads".

6	20°	45°	68.7'	68'	Selco Exploration Co. Ltd. (1958) Harricana Queen Hole 2 GM-18273 Massive pyrite at 68'-68.7'. Hole abandoned due to sanding.
7	20°	60°	55'	55'	Selco Exploration Co. Ltd. (1958) Harricana Queen Hole 3 GM-18273 Hole abandoned in overburden.
8	0°	85°	143'	44'	Selco Exploration Co. Ltd. (1958) Harricana Queen Hole 4 GM-18273 Andesite and about 10' of gabbro. Carbonate, quartz and chlorite layers parallel to the foliation. Some carbonate cuts foliation. Minor pyrrhotite in veinlets and blebs over 6' of core length. Foliation is at 50°-80° to core axis.
9	0°	45°	419'	63'	Selco Exploration Co. Ltd. (1959) Harricana Queen Hole 5 GM-18273 Overburden of boulders and sand. Barren gabbro at 63'-70.3', and 250'-419.5'. Andesite in the remainder of the hole, in places with talc, serpentine, and graphite seams, and four zones 1'-3' thick of 5%-20% pyrite or pyrrhotite. Most of the sulfides are in or near graphitic seams.
10	200°	45°	535'	75'	Selco Exploration Co. Ltd. (1959) Harricana Echo Hole 1 GM-18274 Highly altered andesite(?) at 75'-274.5' followed by sedimentary quartz-carbonate-pyrite zone with about 25% pyrite mostly in disconnected blebs and fine disseminations to 399'. Carbonated chert and dark chert with average of 7% sulfides (mostly pyrrhotite and a little pyrite) at 399'-464'. Quartzite with some carbonate followed by weakly graphitic argillite all with 3%-7% pyrite or pyrrhotite at 364'-535'. Pyrrhotite and pyrite in veinlets in places. Core is at drill-hole.

DIAMOND DRILLING DATA FOR CARHEIL (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
11	295°	45°	376'	75'	Selco Exploration Co. Ltd. (1959) Harricana Jig Hole 10 GM-18272 Fine-grained, light green andesite with some quartz and carbonate veinlets in most of the hole. Light gray green tuff and agglomerate at 150'-230' and, farther on, interlayered with lava. Massive and disseminated pyrrhotite and in places pyrite usually 3%-10% in sections 1'-23' thick throughout the core. Traces of chalcopyrite in one place. 50%-90% pyrrhotite in silicified volcanic rock at 136.8'-144'. Generally pyrrhotite is concentrated in the more silicified zones in andesite; in dark tuffaceous layers; and in brecciated zones.
12	200°	50°	427'	111'	Mining Corporation of Canada (1964) Ltd. (1966) Hole Carheil 1-65 GM-18361 Andesite, dacite, and diabase at 111'-275' and 331'-427'. Rhyolite at 275'-280', 285'-292', and 325'-330' interlayered with graphite at 280'-285', 292'-300', and 300'-312'. Disseminated pyrrhotite and pyrite and a few specks of chalcopyrite in graphite and rhyolite. Nodular pyrite in places in graphite. Maximum of 25% pyrrhotite in graphite. Graphitic zone drilled nearly down the dip at a core angle of 75°-80°.
13	170°	50° to 42°	482'	8'	Mining Corporation of Canada (1964) Ltd. (1966) Hole Carheil 2-65 GM-18361 Andesite, in places silicified; some rhyolite and dacite. Disseminated pyrrhotite and a few specks of chalcopyrite in places between 192' and 463' in andesite and rhyolite. High magnetite content in highly altered andesite at 275.5'-276.5' and 280.5'-281.5'. Quartz stringers in places. ¼" chalcopyrite-pyrrhotite stringers in dacite at 315'. Rhyolite is dark gray and contains fine fragmentals.

CASA-BERARDI TOWNSHIP

1	0°	50°	152'	152'	McIntyre Porcupine Mines Ltd. (1957) Hole S-1 GM-4967 Hole abandoned in overburden
2	0°	55° to 42°	645'	146'	McIntyre Porcupine Mines Ltd. (1957) Hole S-2 GM-4967 At 146'-245': fine-grained, hematite-magnetite iron-formation interlayered with impure arenaceous shale; carbonated quartz stringers; minor pyrite. At 245'-478': gray and buff, fine-grained, highly carbonated, well bedded sedimentary rock; with disseminated pyrite. At 478'-521': fine-grained, gray-green, highly carbonated andesite. At 521'-645': light greenish gray siliceous pillowed andesite. Ten assays each of 10'-sections from 146' to 239' showed 18.4%-28.5% iron, or an average grade of 21.27% iron.
3	180°	55°	700'	122'	McIntyre Porcupine Mines Ltd. (1957) Hole S-3 GM-4967 Gray green, fine-grained, carbonated tuff interlayered with banded fine-grained magnetite iron-formation; fine-grained disseminated pyrite in places. Iron-formation is fine grained, black to reddish black and contains intermixed hematite and magnetite. Twenty-three assays of 5' to 13' of core each taken from the interval from 167'-700' showed 14.7% iron to 35.6% iron. The average grade of the 23 samples was 26.03% iron.
4	180°	55°	503'	80'	McIntyre Porcupine Mines Ltd. (1957) Hole S-4 GM-4967 Dark gray to greenish black, highly carbonated, well-bedded sedimentary rock containing finely disseminated pyrite at 180'-302'. Lean, fine-grained magnetite iron-formation interlayered with gray to dark gray, fine-grained sedimentary rock at 302'-503'. Fifteen assay samples each taken from about 10' of core in the interval 301'-503' showed 18.5%-36.7% iron. The average grade of the 15 samples is 28.01% iron.

DIAMOND DRILLING DATA FOR CASA-BERARDI (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
5	50°	50°	334'	140'	Moneta Porcupine Mines Ltd. (1959) Hole 1 GM-15689 Clay at 0'-17'. Clayey sand and sand with a few boulders at 17'-68'. Closely packed boulders with sandy matrix at 68'-140'. Greenish gray andesite with a little diorite followed by tuff and agglomerate. Zones of graphite in seams, stringers, and bands up to 2" thick in some of the andesite, tuff and agglomerate. 5%-65% pyrite in 2'-16' thick sections within graphitic rocks at 281'-334'. Drill core left at each hole.
6	0°	45°	361'	76'	Moneta Porcupine Mines Ltd. (1959) Hole 2 GM-15689 Gravel, sand, and a few boulders to 76'. Andesite at 76'-107'. Tuff with some agglomerate and zones of graphitic rock at 107'-361'; massive graphitic zones are 3.5'-11' thick. 5%-15% pyrite occurs within the graphitic zones in irregular splashes, blebs, streaks, and bands up to ½" wide.
7	329°	45°	409'	38'	Moneta Porcupine Mines Ltd. (1959) Hole 3 GM-15689 Light gray, fine-grained to aphanitic, fairly soft tuff containing less than 1% disseminated pyrite and having thin layers of massive black graphite from 0.3' to over 1' wide. Quartz and about 5% pyrite in the graphite. Two assays showed no gold or silver.

8	336°	45°	334'	32'	Moneta Porcupine Mines Ltd. (1959) Hole 4 GM-15689 Sand and gravel to 32'. Medium gray, aphanitic andesite with less than 1% disseminated pyrite at 32'-97.7'. Fine-grained, light gray, fairly soft tuff considerably altered to yellowish green epidote in small irregular patches more or less uniformly distributed throughout the rock at 97.7'-159.6' and 1%-2% pyrite disseminated in places. Dark gray aphanitic andesite with 2 graphitic zones 4' and 7' wide; silicified at 183'-334'.
9	0°	45°	300'	40'	Moneta Porcupine Mines Ltd. (1959) Hole 5 GM-15689 Sand and gravel to 40'. Light grayish green tuffaceous agglomerate and tuff. Thin zones 1'-12' wide with 5%-70% graphite, some quartz and 1%-5% pyrite. Graphite is in bands 1/16"-4" wide. Quartz is in narrow bands, irregular fine networks of stringers, and disseminations. Pyrite occurs in thin seams, irregular blebs, and fine disseminated grains.
10	0°	45°	230'	70'	Moneta Porcupine Mines Ltd. (1959) Hole 6 GM-15689 Sand, gravel, and boulders to 70'. Tuff and tuffaceous agglomerate, in places containing 25% graphite in thin stringers and bands up to 1/2" thick and also disseminated. Less than 1% pyrite in places. An increase in the graphite content and some massive black graphitic rock near bottom of hole. An assay showed a trace of gold.
11	0°	47.5°	350'	84	Moneta Porcupine Mines Ltd. (1959) Hole 7 GM-15689 Tuff, usually green to gray but in places graphitic. Mostly massive but in places sheared. Quartz in places occurs in disseminated grains and stringers. From 5% to less than 1% disseminated pyrite in places. Assays of 6 samples showed traces to 0.02 oz./ton of gold.

DIAMOND DRILLING DATA FOR CASA-BERARDI (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
12	--	--	---	---	Location of ddh is indicated on ddh location map of McIntyre Porcupine Mines Ltd. GM-4967. Company which drilled the hole is not known.
13	--	--	---	---	Location of ddh is indicated on ddh location map of McIntyre Porcupine Mines Ltd. GM-4967. Company which drilled the hole is not known.
					DESMAZURES TOWNSHIP
1	180°	45°	405'	115'	Ran Bar Mines Ltd. (1965) Hole D-1 GM-17317 Coarse light-colored tuff with a few carbonate stringers at 115'-205' and 250'-405'. Fine-grained diorite at 205'-223'. Dense light green rock with dark specks at 223'-250'. Light shear at 30° to core axis. Drill core left beside each drill-hole.
2	180°	45°	465'	95'	Ran Bar Mines Ltd. (1965) Hole D-2 GM-17317 Fine-grained with a few carbonate-filled fractures.
3	o°	45°	330'	105'	Ran Bar Mines Ltd. (1965) Hole D-3 GM-17317 Fairly thick bedded tuff at 105'-187'. Fine-grained diorite at 187'-330'. Strong shear at 50° and considerable pyrite and graphite at 184'-187'.
4	180°	45°	203'	162'	Ran Bar Mines Ltd. (1965) Hole D-4 GM-17317 Fine-grained diorite with a few stringers of white quartz.

5	180°	45°	165'	165'	North Mattagami Mines Ltd. (1959) Bouvier Group Hole 1 GM-9493 Hole abandoned due to difficulty with fine sand and large boulders and moved 500' south to location of hole 2 (see below).
6	0°	45°	499'	230'	North Mattagami Mines Ltd. (1959) Bouvier Group Hole 2 GM-9493 Overburden of sand, gravel and clay. Fine-grained well-layered, basic, tuffaceous rock cut by irregular patches of medium-grained basic intrusive rock. Pyrite is found in many quartz veinlets as irregular patches, veinlets, and disseminated crystals. Pyrrhotite occurs in one place. A quartz stringer 2" wide contained 0.23 oz./ton gold. Bedding is at 75° to the core.
7	0°	50°	407'	141'	Noranda Exploration Co. Ltd. (1960) Kitchigama Programme, Sigma Group Hole S-1 GM-10165-B Metadiabase and polka-dot gabbro with a little quartz-chlorite-carbonate schist.
8	180°	50°	402'	34'	Noranda Exploration Co. Ltd. (1960) Kitchigama Programme Sigma Group Hole S-2 GM-10165-B Metadiabase and some quartz-chlorite-carbonate schist.
9	180°	50° to 47°	432'	100'	Harrison Minerals Ltd. (1959) Hole 1 GM-8503-B Altered, siliceous rhyolite; some intermediate to basic lava; talc schist; greenstone porphyry. Up to 1% disseminated pyrite in places. A little magnetite at 432'. Four assays show a trace to .03% copper and a trace to .01% nickel.
10	0°	50° to 24°	455'	104'	Harrison Minerals Ltd. (1965) Hole 2 GM-8503-B Folded, sheared, layered, gray rhyolitic tuff (?) with some basic slaty layers and, in places, disseminated pyrite cubes. Some graphite along shears. Four assays showed a trace to .03% copper and a trace of nickel.

DIAMOND DRILLING DATA FOR DESMAZURES (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
11	0°	59° to 47°	401'	132'	Harrison Minerals Ltd. (1965) Hole 3 GM-8503-B Light green to gray, altered, sheared, drag-folded rhyolite with a little disseminated pyrite at 132'-154'. Green, quartz felsite porphyry with basaltic and siliceous lava at 154'-401'. Some cubical pyrite and in a few places specks of pyrite disseminated in the rock and along shears and fractures. A little magnetite in basic rocks. Three assays show .01% to .03% copper and no nickel.
12	180°	55° to 46°	450'	56'	Harrison Minerals Ltd. (1959) Hole 4 GM-8503-B Volcanic assemblage of greenstone porphyry, green felsite porphyry with coarse quartz blebs, and dark green to black andesite. Minor magnetite in a few shear zones.
13	0°	54° to 34°	427'	92'	Harrison Minerals Ltd. (1959) Hole 5 GM-8503-B Siliceous, slightly altered rhyolite with 20%-80% pyrite and marcasite over much of the core. Minor graphite. Eleven assays, each including 3'-4' of core, showed a trace to .02% copper, nil to a trace nickel, a trace to .02% zinc and a trace of gold.
14	0°	44° to 26°	452'	136'	Harrison Minerals Ltd. (1959) Hole 6 GM-8503-B Mud and sand in overburden. Very siliceous, sheared, light gray rhyolite with a little tuff. Disseminated pyrite in a few places from 136' to 220'. 25%-50% pyrite and, in places, traces of chalcopyrite and sphalerite at 220'-302'. Seven assays, each over 2'-3' of core, show nil to .01% copper and nil to a trace of nickel.

15	0°	50° to 35°	449'	82'	Harrison Minerals Ltd. (1959) Hole 7 GM-8503-B Light gray, highly siliceous, slightly altered and in places sheared rhyolite. 10% to 100% pyrite and pyrrhotite and traces of chalcopyrite throughout most of the core at 264'-440'. Thirteen assays, each over 4' to 25' of core, showed a trace to .04% zinc and a trace to .02% copper.
16	180°	50° to 45°	498'	140'	Alcourt Mines Ltd. (1959) Hole 1 GM-9808 Green andesite cut by narrow stringers of carbonate and containing evenly disseminated pods of magnetite and local traces of pyrrhotite and pyrite. About 10% magnetite at 145'-300' and about 5% magnetite at 300'-498'. Sixteen assays, each over 5'-10' of core, showed a trace to .01% copper and .01%-.02% zinc.
17	180°	51° to 34°	826'	134'	Alcourt Mines Ltd. (1959) Hole 2 GM-9808 Green aphanitic andesite with 1% magnetite and traces of pyrite at 134'-291.4'. Gray-green, aphanitic rhyolite with numerous carbonate stringers, some quartz stringers, and quartz-rhyolite flaser breccia at 291.4'-745'. Breccia at 745'-826'. Trace to 2% pyrite and in a few places magnetite in the breccia. Breccia consists of aligned, lenticular fragments embedded in a schistose matrix of talc, saussurite and epidote. Some sulfides in rhyolite. 5% disseminated magnetite in rhyolite at 456'-531'. .01%-.03% copper and a trace to.02% zinc in 10 assays each over 5' to 6' of core.
18	180°	50°	176'	176'	Alcourt Mines Ltd. (1959) Hole 3 GM-9808 Hole abandoned in overburden.
19	0°	53° to 45°	500'	115'	Alcourt Mines Ltd. (1959) Hole 3a GM-9808 Green andesite cut by irregular carbonate stringers in places with traces to 3% pyrite and pyrrhotite. Fifteen assays, each over 5' of core, showed .01%-.02% copper and a trace of gold.

DIAMOND DRILLING DATA FOR DESMAZURES (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
20	180°	50° to 43°	498'	138'	Alcourt Mines Ltd. (1959) Hole 4 GM-9808 Green andesite with a trace to 3% pyrrhotite at 138'-265'. Green trachyte with trace of pyrite and pyrrhotite and in places brecciated at 265'-498'. Five assays, over 5'-10' of core each, showed .01%-.02% copper.
21	180°	52° to 36°	500'	120'	Alcourt Mines Ltd. (1959) Hole 5 GM-9808 Dark green andesite cut by an irregular network of carbonate stringers at 120'-174.4'. Gray-green trachyte breccia cut by irregular carbonate stringers and containing a trace of pyrite at 174.4'-272.4'. Andesite breccia with 5%-15% magnetite at 272.4'-500'. Twenty-one assays, each over 5'-15' of core, showed a trace to .02% copper, a trace to .03% zinc, and no gold.
22	180°	55° to 47°	506'	185'	Alcourt Mines Ltd. (1960) Hole 6 GM-9808 Gray trachyte and trachyte breccia in places with 1% pyrite and traces of pyrrhotite at 125'-350'. Layering is at 30° to core axis at 209'. Green andesite and andesite porphyry with traces of pyrrhotite throughout at 350'-506'. Eleven assays, each over 3.8'-6' of core, showed a trace to .02% copper and nil to a trace of gold.
23	180°	50° to 46°	299'	170'	Alcourt Mines Ltd. (1960) Hole 7 GM-9808 Green andesite schist cut by irregular carbonate stringers with traces of pyrrhotite throughout the core. 5% magnetite at 225'-299'. Fourteen assays, each over 5' of core, showed .01%-.02% copper and a trace of gold.

24	180°	45° to 33°	512'	20'	Chimo Gold Mines Ltd. (1961) Hole 1 GM-11373-B Diabase, andesite, and pyroxenite at 20'-182.5'. Trachyte, in places brecciated and interlayered with some heavily graphitic slate and trachytic agglomerate at 182.5'-512'. 10% pyrite and 0.5% chalcopyrite in trachyte at 235'-236'. Brecciated trachyte with black argillaceous matrix and 1% disseminated cubical pyrite at 356'-413'. Pyrite zone at 437'-452.5' in graphitic slate with an average of 35% pyrite. Pyrite occurs as nodules up to ½" in diameter and as dense, fine grains. Foliation is 35°-40° to core axis. Note: The locations of drill-holes 1-6 are shown on claim map GM-11373-A
25	176°	45°	165'	165'	Chimo Gold Mines Ltd. (1961) Hole 2 GM-11373-B Hole abandoned in overburden of gravel and boulders.
26	180°	55° to 54°	427'	90'	Chimo Gold Mines Ltd. (1961) Hole 3 GM-11373-B 90'-335' medium-grained, gray-green diorite. 2% magnetite at 125'-335'. Quartz vein with minor carbonate, 3% disseminated pyrite, a trace of chalcopyrite and pyrrhotite, and black, argillaceous graphitic material at 335'-345' assay a trace of gold and no silver. Trachyte with up to 5% pyrite in cubes and fine veinlets and a trace of sphalerite at 345'-355'; an assay of this zone shows .04% zinc. Graphitic slate with 7% pyrite in nodules and veinlets at 355'-371'. Fine-grained, green trachyte with trace of pyrite and pyrrhotite at 371'-427'. Bedding is at 40° to the core axis.
27	53°	52° to 50°	424'	56'	Chimo Gold Mines Ltd. (1961) Hole 4 GM-11373-B Medium-grained, massive, blackish green pyroxenite and a gabbro dike at 56'-389'. Pyroxenite is cut by numerous irregular veinlets and lenses of carbonate and consists of 90% mafic minerals and 10% finely disseminated magnetite with 1% sparsely disseminated specks of pyrrhotite and pyrite. Pale green, massive, fine-grained to aphanitic

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					Chimo Gold Mines Ltd. (1961) Hole 4 GM-11373-B (Cont.) trachyte with traces of chalcopyrite around pillow rims at 389'-424'.
28	0°	55° to 47°	420'	131'	Chimo Gold Mines Ltd. (1961) Hole 5 GM-11373-B Fine-grained, green andesite with specks of pyrite and, in places, chalcopyrite at 131'-215'. Well-bedded slate with graphite on bedding planes, 10% pyrite in fine irregular veinlets, and disseminated, minor pyrrhotite at 215'-222.6'. Gabbro at 224'-271'. 15% pyrrhotite as veinlets and along bedding planes, 1% chalcopyrite, and 1% pyrite in rhyolite-slate complex at 282.3'-292.5', assaying .13% copper, .02% zinc, and no gold or silver. Aphanitic, greenish black, hard rhyolite with minute quartz eyes over remainder of core with some ¼"-1" bands of graphitic slate.
29	180°	50° to 34°	562'	58'	Chimo Gold Mines Ltd. (1961) Hole 6 GM-11373-B Mostly gabbro and andesite with some agglomerate. A tuff-slate complex at 242.2'-253.3' with 10% pyrrhotite disseminated, in blebs and in irregular veinlets. Silicified, chloritized tuff with 30% pyrrhotite and pyrite at 253.3'-260' and 70% pyrrhotite and pyrite with 10% disseminated magnetite at 260'-277'. Assays of this section show .11% to .31% copper, a trace of zinc and gold, and no silver. 5% disseminated magnetite in gabbro at 471'-562'.

30	180°	45°	205'	50'	Kennco Exploration (Canada) Ltd. (1958) Desma Group Hole D-1 GM-18547 Clay overburden. Interlayered siltstone and impure quartzite. In places the siltstone is graphitic and contains minor to 5% disseminated cubical pyrite and, in one place, 2% disseminated pyrrhotite. The quartzite contains slightly carbonaceous layers in places and in other places layers ¼" to 2" of magnetite iron-formation. Minor sphalerite, galena, pyrrhotite and chalcopyrite in two places within the iron-formation. Most of the core from Kennco holes I through 17 is stored at the east shore of Peruse lake in Desmazures township.
31	180°	45°	135'	22'	Kennco Exploration (Canada) Ltd. (1958) Desma Group Hole D-2 GM-18547 Overburden of boulder clay. Siltstone at 22'-135'; relatively hard but not siliceous, and shows relatively little sedimentary banding. About 3% disseminated pyrrhotite in small flakes elongated down the bedding plane in the siltstone at 91.7'-94' and 95.3'-98.8'. Massive pyrrhotite at 94'-95.3' showing slight banding suggestive of replacement of the siltstone with minor pyrite, quartz, and 5% calcite. Very minor chalcopyrite in one place. An assay shows no gold or silver, .01% copper, .01% nickel and .02% zinc.
32	180°	45°	166'	60'	Kennco Exploration (Canada) Ltd. (1958) Desma Group Hole D-3 GM-18547 Overburden of clay. Siltstone, in places well bedded and in places siliceous. Slightly carbonaceous locally with a little graphite developed on slip planes. In places, particularly with carbonaceous facies of the siltstone and especially at 124'-154', massive disseminated, or nodular pyrite. A ¼— inch bleb of chalcopyrite with a small amount of sphalerite at 74.5'. An assay showed no gold, silver or copper.

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
33	180°	45°	182'	73'	Kennco Exploration (Canada) Ltd. (1958) Desma Group Hole D-4 GM-18547 Overburden is clay; boulders from 63' to 73'. Siltstone, in a few places with minor to 2% disseminated pyrite and in one place pyrrhotite at 73'-116.3' and at 145.4'-182'. At 116.3' to 145.4' graphitic siltstone with two sections of 10' and 2' of 10% disseminated pyrite and one section of 14.5' of 3% nodular pyrite with abundant graphite. An assay showed no gold.
34	180°	45°	178'	80'	Kennco Exploration (Canada) Ltd. (1958) Desma Group Hole D-5 GM-18547 Overburden of clay. From 80' to bottom of hole: chloritic siltstone, gray calcareous siltstone, carbonaceous siltstone, and interbanded gray and white quartzite. About 3% disseminated pyrite over a section in carbonaceous siltstone. Almost massive pyrite and pyrrhotite for 2" and 1" followed by a few carbonaceous layers with minor pyrrhotite in the quartzite.
35	0°	45°	317'	107'	Kennco Exploration (Canada) Ltd. (1958) Desma Group Hole D-7 GM-18547 Clay overburden to 97'; gravel at 97'-107'. Interbanded white quartzite and impure gray quartzite in places with thin zones of minor disseminated pyrrhotite and a very small amount of pyrite associated with the softer impure layers to 268'. Graphite on slip planes and thin sections of massive to disseminated pyrrhotite and less pyrite at 268'-276.2'. Carbonaceous siltstone with graphite on slip planes, and zones of massive or disseminated pyrrhotite and pyrite with pyrite nodules at 276.2'-293.6'. Siltstone with 5%-20% calcite, minor

					Kennco Exploration (Canada) Ltd. (1958) (Cont.) Desma Group Hole D-7 GM-18547 disseminated pyrite and pyrrhotite, and a 2'-zone of massive sulfides from 293.6' to 317'. Two assays showed no gold or silver and .10% copper.
36	180°	45°	205'	36'	Kennco Exploration (Canada) Ltd. (1958) Desma Group Hole D-9 GM-18547 Clay overburden. Siltstone, usually silicified, but in a few places carbonaceous with a little graphite. A few small blebs of chalcopyrite and sphalerite at 36'-139'. Disseminated pyrite and some pyrrhotite in places throughout the core and a few zones 1' or less of 10%-80% sulfides.
37	180°	46°	216'	126'	Kennco Exploration (Canada) Ltd. (1958) Desma Group Hole D-10 GM-18547 Clay overburden. Chlorite schist at 126'-128'. Siltstone and gray quartzite, in places interlayered, at 128'-216'. From minor to 20% and in a few places up to 80% pyrite from 136' to 216' occurring as: (1) almost massive replacements along thin discontinuous layers of siltstone; (2) small cubes, singly or in masses; (3) small, fine-grained blebs; and, (4) in nodules up to 1/5" in diameter. In some cases the sedimentary banding curves around the nodules. Graphitic siltstone at 138'-150'. Very minor chalcopyrite in one place. Less than 1% arsenopyrite in small euhedral crystals in places at 161.5'-216'. Two assays showed no silver, a trace of gold and up to .03% copper.
38	180°	45°	189'	66'	Kennco Exploration (Canada) Ltd. (1958) Desma Group Hole D-11 GM-18547 Overburden is mostly clay. Gray siltstone, some carbonaceous siltstone, and gray siliceous siltstone. Gray siltstone is fairly well layered and contains minor disseminated cubical pyrite. Two sections of carbonaceous siltstone 12' and 5' thick contain graphite on slip planes, numerous very thin siliceous bands, and pyrite varying from a few disseminated cubes to thin discontinuous layers of 50% disseminated pyrite. Siliceous

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					Desma Group Hole D-11 GM-18547 (Cont.) siltstone contains minor, and,in one place 10%, disseminated cubical pyrite. An assay shows a trace of gold, no silver and .01% copper.
39	180°	45°	216'	87'	Kennco Exploration (Canada) Ltd. (1958) Desma Group Hole D-12 GM-18547 Clay overburden. Carbonaceous and graphitic siltstone at 87'-115.3' followed by siliceous siltstone and gray siltstone to 216'. Graphitic and carbonaceous siltstone contains about 15% pyrite nodules with concentric structure; two thin zones of massive pyrite; and minor disseminated pyrrhotite and pyrite. 1% to 90% (usually disseminated pyrrhotite and pyrite (the former being dominant) throughout the gray siltstone. In places the pyrrhotite appears to have replaced the siltstone.
40	180°	45°	183'	92'	Kennco Exploration (Canada) Ltd. (1958) Desma Group Hole D-13 GM-18547 Clay overburden. Siltstone and 7.5' of carbonaceous siltstone 2% to 85% disseminated pyrite with minor pyrrhotite in places from 145' to 177.1'. Minor disseminated pyrite in a few other places.
41	180°	45°	259'	76'	Kennco Exploration (Canada) Ltd. (1958) Desma Group Hole D-14 GM-18547 Clay overburden. Calcareous siltstone. 2.3' of carbonaceous siltstone with about 5% pyrite. Some sections in the calcareous siltstone may be described as fine-grained impure quartzite.

42	180°	45°	260'	54'	Kennco Exploration (Canada) Ltd. (1958) Desma Group Hole D-15 GM-18547 Clay overburden. Calcareous siltstone containing 5%-20% calcite in a few places with thin seams of graphite and, in places, well bedded. Impure quartzite (in places chloritic, and in places containing iron-formation over a section of 4.3') is interlayered in two places with siltstone. About 5% pyrite and minor pyrrhotite occur in the carbonaceous sections.
43	180°	45°	284'	41'	Kennco Exploration (Canada) Ltd. (1958) Desma Group Hole D-16 GM-18547 Clay overburden. Siltstone, in places calcareous and in other places carbonaceous, to 249.8'. Impure quartzite at 249.8'-284'. Siltstone contains fine-grained tourmaline in two massive layers and, in places, disseminated pyrite or pyrrhotite. Impure quartzite with 1½" layer of almost massive pyrrhotite; a.5' layer of 20% disseminated pyrite, pyrrhotite and very minor sphalerite; and a few bands up to 1" thick of magnetite iron-formation containing minor disseminated pyrrhotite.
44	180°	45°	215'	81'	Kennco Exploration (Canada) Ltd. (1958) Desma Group Hole D-17 GM-18547 Clay overburden. Siltstone, in a few places carbonaceous, with up to 3% pyrite in disseminated cubes and minor to 2% pyrrhotite in a few other places. 8' of impure quartzite containing up to 60% sulfides. An assay shows no gold or silver and .03% copper.
45	0°	60°	508'	95'	East Sullivan Mines Ltd. (1958) Allard River Option Hole C.P. 27 GM-6248-B Aphanitic rock resembling andesite (?) at 95'-200'. Black graphitic slate with calcite stringers at 200'-341'. Graphitic content increases from 341' to 395'. White calcic beds interbedded with graphitic slate from 395' to 508'. 0.5% pyrite at 147'-149.5' and 204'-208'. Flow lines at 95'-200' are at 45° to the core axis. The core for all drill-holes of East Sullivan Mines has been left at the camp nearest each drilling site. (The logs for all holes are filed under Cavelier township. A number of

DIAMOND DRILLING DATA FOR DESMAZURES (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
					East Sullivan Mines Ltd. (1958) GM-6248-B (Cont.) logs for holes adjacent to the map-area in Cavelier township are not summarized for they lie outside the map-area).
46	0°	60°	597'	60'	East Sullivan Mines Ltd. (1958) Allard River Option Hole C.P. 29 GM-6248-B White and pale green rock resembling diorite at 60'-138'. Slightly graphitic black and white interlayered slate at 138'-170' grading into fine-grained graywacke or arkose from 170' to 248'. Black and white slates, in places graphitic, and sections of pyrite at 248'-597'. 3% pyrite in blobs at 248'-264'. Three assays, each over 1' of core, at 154'-157' show .05%-.07% copper and traces of gold and silver. Bedding at 60'-138' is at 40° to the core axis.
47	0°	60°	512'	75'	East Sullivan Mines Ltd. (1958) Allard River Option Hole C.P. 31 GM-6248-B At 75' slightly graphitic, black aphanitic schist which at about 200' grades into impure graywacke and slate with 1% pyrite in cubes and blobs. Pyrite replaces calcite inclusions. Siliceous graywacke or arkose with 2% cubical pyrite at 211'-242'. White and black graphitic slate with pyrite replacing calcite at 242'-512'. Twelve assays, each over 5' of core, at 335'-478' showed nil to .10% copper and a trace of silver and gold. Schistosity at 75'-211' is at 45° to the core axis.

48	0°	64°	560'	80'	East Sullivan Mines Ltd. (1958) Allard River Option Hole C.P. 33 GM-6248-B (The actual location of this hole is in Cavelier township about 3000' east of the location shown on the geological map accompanying this report.) Aphanitic chloritic tuff with banding at 35° to the core axis. A few needles of tourmaline. Eighteen assays, each over 1'-5' of core, showed a trace to .03 oz./ton gold, a trace to .10 oz./ton silver, no zinc, and up to .10% copper.
49	0°	55°	486'	85'	East Sullivan Mines Ltd. (1958) Allard River Option Hole C.P. 41 GM-6248-B Gray and black slate or schist with about 1% pyrite in stringers and nodules at 85'-252'. Light gray felsic tuff resembling graywacke with small crushed grains of sub-rounded quartz, feldspar, and calcite and containing small black angular fragments of slate and some sections of massive graywacke from 252' on. From 284' on, the rock is lighter colored with an aphanitic groundmass and up to 0.5% cubical pyrite. About 5% pyrite in cubes, blobs, and nodules and some pyrrhotite (max. 10% pyrrhotite) in 6 sections 1'-5' thick at 378'-473'. Twelve assays, each over 5' of core, at 335'-478' showed nil to .10% copper and a trace of gold and silver.
50	180°	59°	603'	50'	East Sullivan Mines Ltd. (1958) Allard River Option Hole C.P. 47 GM-6248-B Intermediate, fine-grained, slightly chloritic porphyry resembling graywacke at 50'-150'. Small, disseminated cubes of pyrite and small fragments of tuff and chloritic rock in the porphyry. At 150'-174', buff, felsic, carbonaceous tuff. At 174'-603', fine-grained, carbonaceous, tuffaceous fragments. Pyrite as nodules, and cubes and stringers of pyrrhotite, along cleavage planes up to 2% (5% in 2 sections of 1' thickness each) in 7 places each over 1'-6' of core at 361'-504'. Ten assays, each over 1'-6' of core showed .05%-.12% copper, a trace of gold, and a trace of silver (.10 oz./ton silver in 1 assay).

DIAMOND DRILLING DATA FOR DESMAZURES (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
51	0°	52°	385'	128'	East Sullivan Mines Ltd. (1958) Allard River Option Hole C.P. 49 GM-6248-B Slightly graphitic, gray and black slate or lineated tuff with very good cleavage at 128'-181'. Green chloritic intermediate tuff with numerous small 1/8" stringers of quartz, and calcite and, in places, traces of pyrite, at 181'-256'. Graphitic schist at 256'-331.5'. 10% pyrite in cubes, nodules and small stringers at 285'-290', and 3% pyrite at 290'-298'. Intermediate to acidic agglomerate and tuff, in places with carbonaceous inclusions, at 331.5'-385'. An assay showed a trace of gold and silver and .10% copper. Slaty cleavage at 128'-181' is at 70° to the core axis.
52	0°	50°	256'	150'	East Sullivan Mines Ltd. (1958) Allard River Option Hole C.P. 51 GM-6248-B Graphitic slate at 150'-165'. Siliceous agglomerate and tuff, small amount of carbonate, and feldspathic agglomerate (no chlorite) at 165'-256'. Small platy dark beds of slate at 165'-208'. Small graphitic impurities at 246'-256'.
53	35°	54°	541'	28'	East Sullivan Mines Ltd. (1958) Allard River Option Hole C.P. 53 GM-6248-B Gray, aphanitic rock resembling graywacke in color and texture; probably an impure quartzite. At 210'-253' the rock contains small carbonate and feldspathic blobs and shows agglomeratic texture. At 325'-541' gray and white interlayered sedimentary rock. Layers are about ½" thick and consist of gray aphanitic layers interstratified with grayish-white, quartz-rich layers. Disseminated blobs or stringers of pyrrhotite and/or pyrite and specks of chalcopyrite in places at 77'-286'. At 286'-541' a trace to

					East Sullivan Mines Ltd. (1958) GM-6248-B (Cont.) 2% sulfides (pyrrhotite, a little pyrite, and specks of arsenopyrite) occur disseminated in places along bedding. Quartz and quartz-carbonate stringers also occur. Seventy assays each over .5'-5' of core (usually 2' to 3' of core) were made of the entire core from 286.5' to 487' and showed .02%-.90% copper (usually .10%-.20%), a trace of gold (.005 oz./ton to .01 oz./ ton gold in 4 samples), a trace of silver (.02 oz/ton to .31 oz./ton silver in 4 samples), and a trace of nickel. Bedding at 325' is at 20°-40° to the core axis.
54	35°	50°	563.5'	30'	East Sullivan Mines Ltd. (1958) Allard River Option Hole C.P. 55 GM-6248-B Grayish, siliceous tuff grading to fine- and medium-grained agglomerate at about 84'. Quartz tuff and well-bedded green to black slate with traces of pyrrhotite and pyrite at 160'-269'. 10% pyrite and pyrrhotite at 158'-159' and at 198'-198.6'. Graphite zone with about 70% pyrite and a trace of pyrrhotite at 269'-293'. Graphitic schist at 293'-305'. Dark gray slate to grayish carbonaceous slate with traces of pyrite and pyrrhotite at 205'-563.5'. Twenty-eight assays, each over 5' of core from 164' to 294', showed nil to 40% copper (usually .10% to .20% copper), a trace of gold, a trace of silver (3 assays showed .04 oz./ton to .10 oz./ton silver) and no nickel.
55	215°	50°	425'	35'	East Sullivan Mines Ltd. (1958) Allard River Option Hole C.P. 57 GM-6248-B Thin beds of slate interbedded with grayish semi-granular felsic rock. Traces of pyrrhotite and pyrite occur generally with black slate along bedding and/or cleavage planes. At 232'-250' about 1% disseminated cubical pyrite and specks of pyrrhotite and chalcopyrite. Graphitic zone with sulfides at 250'-272'. 20%-30% pyrite, a trace to 1% pyrrhotite, and a few specks of chalcopyrite and a trace sphalerite in graphitic schist at 261'-264'. Siliceous tuff with thin layers of small quartz grains and trace to 1% pyrite and pyrrhotite at 272'-342'. Fine-grained felsic [illegible]

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					partly carbonaceous and a trace to 0.5% of pyrrhotite and pyrite at 342'-425'. Fifteen assays, mostly over 5' of core, at 115'-127.5', and 260'-333' showed 0.05%-0.40% copper (usually 0.10%-0.20% copper), a trace of gold and a trace of silver (0.05 oz./ton to 0.07 oz./ton silver in 3 samples), and no nickel.
56	215°	50°	404'	45'	East Sullivan Mines Ltd. (1948) Allard River Option Hole C.P. 59 GM-6248-B At 45'-199' interbedded gray carbonate and black (graphitic?) slate with trace to .05% pyrite along the cleavage planes in slate. At 199'-205' 75% pyrite and 25% graphite. At 205'-264' quartz crystal tuff with trace to 1% pyrrhotite and pyrite. 10% pyrrhotite at 259'-260'. At 264'-404' massive, gray, fine-grained, siliceous felsite, small amounts of pyrrhotite, and a trace of chalcopyrite. At 280'-404' less pyrrhotite. Thirteen assays, each over 5' of core at 200'-264' show .05%-.20% copper (usually .05%-.15% copper). a trace of gold (2 samples showed .01 oz./ton gold), a trace of silver (6 samples showed .04 oz./ton to .11 oz./ton silver) and no nickel. Bedding and cleavage at 45'-199' are at 70° to the core axis.
57	210°	50°	394'	40'	East Sullivan Mines Ltd. (1958) Allard River Option Hole C.P. 61 GM-6248-B Bedded quartz tuff with 10% rusted sulfides at 40'-41'. Gray, siliceous carbonate rock showing faint bedding or grain orientation with trace of pyrite, pyrrhotite and chalcopyrite at 41'-394'. Sulfide content decreases with depth.

58	180°	50°	523'	24'	East Sullivan Mines Ltd. (1958) Allard River Option Hole C.P. 63 GM-6248-B At 24'-188' aphanitic, gray to pale green rock with about 5% small, white, carbonate grains. Rock shows fair to good bedding (at 50° to core axis) and looks like a carbonate-rich intermediate tuff. General increase in thin, black (graphitic?) beds from 188' to 205'. Graphitic slate and disseminated pyrite (20%) and pyrrhotite (5%) at 205'-241'. Quartz crystal tuff with bedded layers ½"-2" thick of small quartz grains and trace of pyrite and pyrrhotite at 241'-260'. Light green aphanitic tuff with good bedding at 260'-340'. At 340'-523' an increase in fine-grained agglomerate and in carbonate. Eleven assays, each over 5' of core, at 205'-260' showed nil to .10% copper (usually .05% copper) and a trace of gold and silver.
59	0°	50°	500'	34'	East Sullivan Mines Ltd. (1958) Allard River Option Hole C.P. 65 GM-6248-B At 34'-209' interbedded carbonate tuff and small dark stringers with trace of pyrite and pyrrhotite. Content of sulfide minerals gradually increases with depth below 168'. At 209'-303' well-layered quartz tuff interlayered with graphitic argillite; a trace to 3% pyrrhotite and pyrite. 5%-15% pyrrhotite at 288'-303'. At 303'-381' well-bedded, aphanitic, slightly chloritic argillite interbedded with fine-grained tuff. .5%-1% pyrrhotite at 322'-326'. At 381'-500' carbonate and silica-rich agglomerate with pale green partly chloritized groundmass. Twenty-three assays of 5' each from 209' to 320' showed nil to .45% copper (usually .10% to .25% copper), a trace of gold (.005 oz./ton to .01 oz./ton gold in 5 samples, and a trace of silver (.07 oz./ton to .20 oz./ton in 5 samples). Bedding at 34'-209' is at 40° to the core axis.

DIAMOND DRILLING DATA FOR DIEPPE TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
1	0°	50°	629'	61'	Conwest Exploration Co. Ltd. (1957) Hole S-1 GM-6242 Overburden of fine sand and clay to 49'; gravel and small boulders at 49'-61'. From 61' to 601' a soft, gray, fine-grained, thinly bedded, sedimentary rock with numerous small (1/16"-1/8") carbonate metacrysts interbedded with impure magnetite laminae. Small, indistinct carbonate and quartz-carbonate seams in most of the magnetite beds. A little fine-grained magnetite disseminated throughout the rock and in places a thin seam of fine pyrite. At 61'-601' samples taken every 5 feet show 2%-80% magnetite; the iron content is 10.77%-30.19% at 344'-601'. Altered greenish gray, thinly bedded sedimentary rock or tuff at 601'-629'. Bedding at 66' is at 40° to core axis. Most of core for 3 holes is on the property beside a creek.
2	154°	50° to 34°	829'	47'	Conwest Exploration Co. Ltd. (1957) Hole S-2 GM-6242 Magnetite iron-formation throughout most of the core consisting of interbedded carbonate schist with some fine- and medium-grained, cherty, magnetite rock. Quartzite (maybe quartz veins) is present. The carbonate schist contains partly crystallized concretions; or is metamorphosed to muscovite schist; or is somewhat silicified and contains some pyrite; or is a breccia with a dark green chloritic groundmass. A little specular hematite is present in places. In places, disseminated pyrite, usually less than 1% but up to 5%. The richer parts of the core have 23.8%-36.02% iron, and the lean parts 6%-8% iron. Banding at 104' is at 30° to the core axis.

3	0°	50°	522'	111'	Conwest Exploration Co. Ltd. (1957) Hole S-3 GM-6242 Geology much as hole S-2 described on previous page. "Lean" to "heavy" magnetite with some carbonate schist over most of the core. An average of assays given for a few sections of core ranges from 17.62% to 25.15% iron.
					DOUAY TOWNSHIP
1	180°	45°	418'	185'	North Mattagami Mines Ltd. (1959) Hole 2 GM-9505 Overburden consists of gravel, boulders and some clay. Generally fine-grained, dark to medium gray rock of graywacke composition showing fine, alternating light and dark gray laminae. In a few places the graywacke is coarser-grained and the bedding is less obvious. Extremely fine-grained magnetite with chert and jasper occurs in many places from 202' to 284'. 5%-20% iron (usually about 7%) was visually estimated in 36 sections of 1'-5' core length at 202'-284' (sections under 5% iron content were not noted). Several magnetite-rich beds occur below 284' but are separated by relatively wide bands of barren graywacke.
2	180°	50°	240'	127'	Quebec Mattagami Minerals Ltd. (1962) Hole 1 GM-12515-A Rhyolite with fine disseminated pyrite at 127'-133'. Cherty and in places tuffaceous graphitic slate with up to 20% fine pyrite in blobs and stringers at 133'-198.5'; bedding is at 52° to the core axis. Cherty, light gray, and in places graphitic tuff and rhyolitic tuff with up to 5% pyrite at 198.5'-240'.
3	344°	50°	332'	17'	Quebec Mattagami Minerals Ltd. (1962) Hole 2 GM-12515-A Andesite with minor amounts of dark gray cherty tuff at 17'-151'. Scattered seams of pyrrhotite with some chalcopyrite in a few places in andesite. Contact of andesite and tuff at 35° to core axis. Gabbro with some fine pyrite in places at 151'-295.7'. Light gray

DIAMOND DRILLING DATA FOR DOUAY (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
					Quebec Mattagami Minerals Ltd. (1962) GM-12515-A cherty tuff, in places with graphitic seams containing fine pyrite. Bedding of graphitic seams at 299' is at 48° to core axis.
4	180°	50°	217'	41'	Quebec Mattagami Minerals Ltd. (1962) Hole 3 GM-12515-A Light gray, highly carbonated, and in places siliceous tuff grading in places into graphitic tuff. Graphitic tuff contains up to 15% scattered fine pyrite and pyrrhotite with a few specks of chalcopyrite; bedding in tuff at 168' is 40° to core axis.
					ENJALRAN TOWNSHIP
1	---	vertical	25'	25'	Noranda Exploration Co. Ltd. (1965) Hole TE-1 GM-16862 Hole lost in overburden of clay and boulders.
2	---	vertical	54'	15'	Noranda Exploration Co. Ltd. (1965) Hole TE-2 GM-16862 Clay and boulders to 15'. Gray to bluish gray, very hard and highly siliceous rhyolite mineralized with sulfides in patches, streaks, and stringers. Rhyolite becomes increasingly graphitic with depth. 15% pyrrhotite and pyrite and minor chalcopyrite and sphalerite at 15'-17'. 20% pyrrhotite and pyrite at 25'-30' with streaks of chalcopyrite at 25'. 4%-8% sulfides at 47'-54'. Unmineralized basic dikes (lamprophyre?) at 17'-19' and 39'-47'.

3	---	vertical	65'	15'	Noranda Exploration Co. Ltd. (1965) Hole TE-3 GM-16862 Clay and boulders to 15'. At 15'-48' dark greenish gray, massive, relatively soft, intermediate volcanic (andesite?) mineralized with an overall average of 10% pyrrhotite in stringers and streaks. Mineralization increases with depth. Graphite with 20%-25% pyrrhotite and pyrite at 48'-65'.
4	28°	52°	350'	18'	Area Mines Ltd. (1962) Group 4 Hole 44-1 GM-18821 Rhyolite porphyry at 18'-27'. Diabase (lava phase?) with minor pyrrhotite, pyrite and chalcopyrite at 27'-122'. Rhyolitic tuff, some breccia and diabase at 122'-270'. Strong pyrite, minor pyrrhotite and chalcopyrite at 119'-200' and at 234'-270' with graphite. Diabase with very little mineralization at 270'-350'.
5	348°	52°	360'	50'	Area Mines Ltd. (1962) Group 4 Hole 44-2 GM-18821 Mostly rhyolite to rhyolitic tuff with some lava. Strong to erratic pyrite and pyrrhotite with graphite in places. Massive pyrrhotite at 135'-142'.
6	0°	45°	90'	90'	Korich Mining Company Ltd. (1960) Hole 1A GM-10909 Sand and gravel. Hole abandoned in overburden. "A great deal of difficulty was encountered in sinking through the overburden, most of which carried water under pressure which pushed gravel and sand up into the holes seriously delaying progress. Sand and gravel, pushed up the holes after drilling had stopped, would surround the rods so that the string of rods and pipe became mashed together."

DIAMOND DRILLING DATA FOR ENJALRAN (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
7	0°	45°	261'	125'	Korich Mining Company Ltd. (1960) Hole 1 GM-10909 Highly altered, schistose greenstone breccia with small patches of carbonate and a little fine pyrite along the schistosity at 125'-168' grading into banded graphitic tuff with 3%-5% pyrite in patches and seams in the more graphitic beds at 168'-202.5'. Schistose greenstone with zones of graphite at 202.5'-252'. 10% pyrite in a graphitic zone at 207.5'-214'. Recrystallized green-stone or fine-grained gabbro (hornblende in a finer matrix) at 252'-261'. Two assays show a trace of gold and zinc and 0.05% copper. Schistosity at 125'-168' is at 60° to the core axis.
8	0°	45°	103'	103'	Korich Mining Company Ltd. (1960) Hole 2 GM-10909 Sand and gravel. Hole abandoned in overburden.
9	0°	55°	80'	80'	Korich Mining Company Ltd. (1960) Hole 2A GM-10909 Sand and gravel. Hole abandoned in overburden.
10	0°	45°	108'	108'	Korich Mining Company Ltd. (1960) Hole 3 GM-10909 Sand and gravel. Hole abandoned in overburden.
11	180°	60°	305'	124'	Korich Mining Company Ltd. (1960) Hole 4 GM-10909 Black graphitic tuff with 15% pyrite along banding at 124'-157'. Gray tuff (no graphite) at 157'-181.5'. Slightly graphitic tuff at 181.5'-195'. Tuff with a few scattered zones of graphitic tuff and in places

					Korich Mining Company Ltd. (1960) GM-10909 finely disseminated pyrite at 195'-268.5'. Chloritic, carbonated, altered andesite with disseminated pyrite at 268.5'-279.7'. Layered tuff and andesite at 279.7'-305'. Bedding at 45° to core axis at 124'-157'.
12	180°	60°	310'	91'	Korich Mining Company Ltd. (1960) Hole 5 GM-10909 Medium-grained gabbro cut by quartz veins and in places containing a few specks of finely disseminated pyrite. At 100', a 5" zone of quartz, epidote, and graphite with a little finely disseminated pyrite. One assay showed no gold and 0.01% copper.
13	180°	45°	300'	127'	Korich Mining Company Ltd. (1960) Hole 6 GM-10909 Boulders to 80'. Sand and gravel at 80'-127'. "Rock salt-grained" gabbro with 50% hornblende partly altered to chlorite and the remainder plagioclase at 127'-156.3' and at 176.9'-300'. Sugar-grained gray-green diorite at 156.3'-176.9'. Six quartz veins 1"-6" thick with 1%-2% pyrite and in two veins a trace to 1% chalcopyrite. Two zones, 2.5' and 4' thick, with 1% pyrite and in one of the zones with 0.5% chalcopyrite. An assay of the 2.5' zone showed no gold and 0.03% copper.
14	150°	30°	303'	2'	Korich Mining Company Ltd. (1960) Hole 7 GM-10909 Fine-grained, dark green basalt with a few zones of "salt-grained" rock 1"-2' wide at 2'-120'. Two sections 1' and 20' thick of 1% pyrite and a 6" quartz vein with 1% pyrite and a trace of chalcopyrite at 23.5'-79.5'. Even-textured, dark gray diorite at 120'-303' with 3 sections of magnetite as follows: 120'-170' (3% magnetite), 237'-255' (4% magnetite), and 282'-283' (10% magnetite).
15	---	vertical	200'	56'	Korich Mining Company Ltd. (1960) Hole 8 GM-10909 Rock salt-grained and "coarse sugar"-grained gabbro with 40% dark minerals. Specks of pyrite throughout. Trace of chalcopyrite.

DIAMOND DRILLING DATA FOR ENJALRAN (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
16	---	vertical	142'	68'	Prospectors' Airways Company Ltd. (1959) Brivan No. 12 Group Hole 1 GM-18271 Sand and gravel at 0'-47'; sand and boulders at 47'-65'; sand at 65'-68'. Black, massive, poorly bedded, locally sheared and brecciated carbonaceous tuff or sedimentary rock. Sheared and brecciated parts are graphitic and contain up to 40% pyrite in nodules. The more massive sections contain disseminated pyrite and streaks of graphitic material.
17	180°	60°	61'	50'	Selco Exploration Co. Ltd. (1959) Harricana Item Hole 1 Not in government files Location: 300' north and 40' east of post 2 claim 138794-2 (A-268006). Gray, porphyroblastic argillite at 50'-61'. Hole abandoned due to caving.
18	180°	60°	100'	58'	Selco Exploration Co. Ltd. (1959) Harricana Item Hole 2 Not in government files - no formal log kept by Selco. Location is 100' south of Hole Item No 1 Interbanded andesite and graywacke with traces of pyrite and several specks of chalcopyrite at 58'-82'. Carbonaceous argillite with graphitic slips at 82'-100'.
19	0°	50°	310'	60'	Kesagami Syndicate (1959) Grizzley Group Hole 29-1 GM-15127 Layered quartzite and quartzitic conglomerate or breccia. Quartzite is gray to whitish gray and contains grains of quartz up to ½" in most places and up to 2" in a few places. The rock shows faint to strong layers

					Kesagami Syndicate (1959) GM-15127 ½"-1" wide. 2%-35% very fine-grained pyrite,pyrrhotite and magnetite in matrix over most of core. Richer sections show 20% pyrrhotite, 5% pyrite, and 5% magnetite. Several assays showed no gold, .03 to .04 oz./ton silver, .02%-.04% copper, no nickel and .02% zinc. Bedding at 40°-45° to core axis. Core for hole 29-1 was left on the northeast shore of Burel lake in Enjalran township.
20	20°	50°	294'	83'	Kesagami Syndicate (1959) Gopher Group Hole 26-1 GM-15126 At 83'-163' diabase with 2%-3% pyrrhotite and trace of chalcopyrite near the lower contact. Quartzite conglomerate, quartzite, and siliceous intrusive rock and some tuff and agglomerate at 163'-294'. 4%-5% pyrrhotite, minor pyrite, and a trace of chalcopyrite and sphalerite in quartzite at 163'-198'. 60% graphite (nearly 100% in places) with 10% pyrrhotite and minor pyrite at 163'-170.3'. 2% pyrrhotite with traces of chalcopyrite at 218.6'-231.6'. Less than 1% pyrrhotite and pyrite elsewhere in the sedimentary rock. Three assays showed no gold, .03-.04 oz./ton silver, .02%-.04% copper, up to .10% zinc, and no nickel. Quartzitic conglomerate consists of angular to subhedral fragments of quartzite up to 5" in a carbonaceous matrix. The siliceous intrusive rock is light green and contains fragments of the sedimentary rock. Few veinlets with up to 40% siderite in places. Core for hole 26-1 was left on the northeast shore of Burel lake in Enjalran township.
21	30°	45°	117'	6'	Selco Exploration Co. Ltd. (1959) Harricana Jig Hole 8 GM-18235 Fine-grained gabbro at 6'-34.3'. Andesite, locally chloritic, with traces of pyrrhotite at 34.3'-117' except for brown micaceous tuff at 66.5'-78'. 50% pyrrhotite in layers at 61.3'-62'. Coarse blebs and veins of pyrrhotite in quartz veins (about 5% pyrrhotite) at 82'-97.5'.

DIAMOND DRILLING DATA FOR ENJALRAN (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
22	20°	55°	128'	50'	Selco Exploration Co. Ltd. (1959) Harricana Jig Hole 9 GM-18235 Brown micaceous tuff at 50'-92'. 70% magnetite, some chlorite, pyrrhotite, and pyrite, and trace of chalcopyrite at 92'-96.5'. Silicified contorted volcanic rock with some pyrrhotite and pyrite and a trace of chalcopyrite at 96.5'-106.5'. Fine-grained andesite at 106.5'-128'. Layering is at 55° to core axis.
23	180°	60°	131'	35'	Selco Exploration Co. Ltd. (1959) Harricana Victor Hole 1 GM-18232 Graywacke, in places grading into argillite, with narrow zones containing up to 15% pyrite and pyrrhotite with a trace of chalcopyrite in disseminations, blebs, and layers. Layers at 40° to core axis.
24	33°	45°	401'	43'	Selco Exploration Co. Ltd. (1959) Harricana Zebra Hole 1 GM-8929-B From 43' to 345' sedimentary rocks consisting of interlayered, dark siliceous argillite; medium- to fine-grained graywacke; and arkose with a few narrow sections of lava. Some talcose zones, carbonate and local silicification. Traces of pyrite and pyrrhotite to 269'. 3%-7% pyrite and/or pyrrhotite as sporadic layers, veinlets, blebs, and disseminations at 269'-312.7' and 321'-323.5'. 10%-15% layered pyrite in dark, layered argillite with graphitic partings at 312.7'-316'. 20% layered pyrrhotite and 0.5% chalcopyrite at 334'-335'. Andesite with local quartz-carbonate veining and a trace of pyrrhotite at 341'-401'.

25	354°	45°	363'	42'	Selco Exploration Co. Ltd. (1959) Harricana Zebra Hole 3 GM-8929-B Gabbro followed by recrystallized lava or, in places, gabbro (?) with 12.8' of arkose at 42'-365'. A few coarse blebs of pyrrhotite at 220.5'. At 278.7'-285', 10% layered pyrrhotite and 3% magnetite in chloritized, silicified lava with a few garnets.
26	37°	45°	420'	78'	Selco Exploration Co. Ltd. (1959) Harricana Welcome Hole 1 GM-8929-A Massive gabbro at 78'-245.2' followed by dacite with some tuff. Mineralized zone at 245'-276' with 11 zones of from 0.1'-7.7' of 1%-50% pyrrhotite (average 5%) and nil to a trace of chalcopyrite with 3 zones of 4% chalcopyrite. Most sulfides occur in layered rock along the foliation, in siliceous bands or in hair-like fractures. Pink garnet and a little graphite in the mineralized zone. Sulfides consist of about 95% pyrrhotite and 5% pyrite. Layering is at 65° to the core axis. Mineralized zone contains dacite and some tuff (?).
27	82°	45°	157'	157'	Selco Exploration Co. Ltd. (1959) Harricana Welcome Hole 2 GM-18230 Hole abandoned in overburden of quicksand, gravel and boulders.
28	262°	45°	132'	132'	Selco Exploration Co. Ltd. (1959) Harricana Welcome Hole 3 GM-18230 Hole abandoned in overburden of quicksand, gravel, and boulders.
29	99°	55°	535'	139'	Selco Exploration Co. Ltd. (1959) Harricana Welcome Hole 4 GM-18230 Streaky, fine-grained, recrystallized andesite containing feldspar, hornblende, biotite and, in places, chlorite. Up to 5% pyrrhotite (usually 1%-3%); in places 1% pyrite and up to 0.5% chalcopyrite in veinlets parallel to the foliation, hair-like fractures, disseminations and blebs throughout much of core. 50% pyrrhotite and 10% chalcopyrite at 213'-213.3'. 22% pyrrhotite, 2% chalcopyrite and 1% pyrite at 397'-415.6'.

DIAMOND DRILLING DATA FOR ENJALRAN (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
30	37°	45°	500'	130'	Selco Exploration Co. Ltd. (1959) Harricana Welcome Hole 5 GM-8929-A Gabbro grading to andesite with a few blebs of pyrrhotite, pyrite, and chalcopyrite at 130'-254'. Interlayered graywacke and argillite much of which contains 1%-20% pyrite (average range is 2%-7%) and an occasional bleb of pyrrhotite from 254' to 500'. Some of the argillite is graphitic.
31	37°	45°	409.1'	78'	Selco Exploration Co. Ltd. (1959) Harricana Welcome Hole 6 GM-8929-A Overburden of boulders. Fine- to medium-grained gabbro rich in magnetite at 78'-201'. Alternating zones of gabbro and fine-grained gray lava at 201'-280'. Gray lava (andesite?) at 280'-354.3'. Garnetiferous chlorite schist with about 7% pyrrhotite in patches either massive or disseminated at 354.3'-358'. Streaky hornblende lava (andesite?) with minor blebs and veinlets of pyrrhotite and a 2' zone of garnet at 358'-409.1'. An average of 9% pyrrhotite, but a 2' and a 9' section of 15% pyrrhotite between 280' and 303'. Pyrrhotite occurs as irregular veinlets and blebs in quartz carbonate which cuts lava.
32	235°	45°	127'	6'	Selco Exploration Co. Ltd. (1958) Harricana Jig Hole 1 GM-8650 Dark green, fine-grained greenstone, in part with a sugary texture, and becoming gray green where carbonate alteration is more intense. Twelve zones, each up to 1½' thick, of 15%-40% pyrrhotite and pyrite and, in one place, chalcopyrite.

33	30°	45°	150'	7'	Selco Exploration Co. Ltd. (1958) Harricana Jig Hole 2 GM-8650 Fine- to medium-grained diorite to greenstone with slight carbonate alteration and a few carbonate veins, and containing minor pyrite, pyrrhotite, and chalcopyrite. Seven zones 6"-5' of 10% pyrite and pyrrhotite and, in one place, small amounts of chalcopyrite. A 14" graphite zone with 20% sulfides (predominantly pyrite).
34	45°	60°	145'	23'	Selco Exploration Co. Ltd. (1958) Harricana Jig Hole 7 GM-18235 Andesite at 23'-109' and 125'-129'. Fine-grained gabbro at 142.5'-145'. Graphitic argillite with 30% pyrrhotite in contorted bands and minor chalcopyrite at 109'-115' and 20% pyrrhotite with nearly 1% chalcopyrite at 139'-142.5'. Brown tuff with some quartz and pyrrhotite at 120.8'-125'. 5% to 10% pyrite and pyrrhotite in quartz-chlorite rock at 115'-120.8'.
35	306°	50°	444'	105'	Selco Exploration Co. Ltd. (1959) Harricana Zebra Hole 2 GM-8929-B At 105'-268' interlayered arkose, argillite, and graywacke. At 268'-444' altered and recrystallized volcanic rocks, in places with patches of garnet. Magnetite-rich zones in places at 345'-370'. About 1% pyrite and/or pyrrhotite in local layers at 197'-223'.
36	---	vertical	27'	16'	Noranda Exploration Co. Ltd. (1965) Hole HM-1 GM-16615 Siliceous, hard, fine-grained, light gray rhyolitic agglomerate. Rust along joints.
37	---	vertical	37'	14'	Noranda Exploration Co. Ltd. (1965) Hole HM-2 GM-16615 Rhyolitic agglomerate consisting of light gray fragments in a darker matrix. Both fragments and matrix are siliceous and fine grained. Several sections of feldspar porphyry. Approximately 30% pyrrhotite in grains and stringers replacing the agglomerate throughout the core in short sections.

DIAMOND DRILLING DATA FOR ENJALRAN (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
38	---	vertical	48'	18'	Noranda Exploration Co. Ltd. (1965) Hole HM-3 GM-16615 Grayish, dacitic agglomerate with light gray fragments. Matrix is soft but fragments are siliceous. Less than 4% pyrrhotite and pyrite in streaks and grains at 28'-35'. Joints are coated with rust.
39	---	vertical	23'	23'	Noranda Exploration Co. Ltd. (1965) Hole HM-4 GM-16615 Hole abandoned in overburden.
40	---	vertical	59'	20'	Noranda Exploration Co. Ltd. (1965) Hole HM-5 GM-16615 Rhyolitic agglomerate with numerous light gray fragments in a bluish gray matrix. The fragments and matrix are fine grained, highly siliceous and hard. Short sections of feldspar porphyry. About 5% pyrrhotite and minor pyrite in streaks, stringers and grains throughout the core.
41	---	vertical	23'	23'	Noranda Exploration Co. Ltd. (1965) Hole HM-6 GM-16615 Hole abandoned in overburden.
42	---	vertical	65'	0'	Noranda Exploration Co. Ltd. (1965) Hole HM-7 GM-16615 Rhyolitic agglomerate with pale fragments in a bluish gray matrix. Both matrix and fragments are highly siliceous, fine grained, and hard. The fragments are sub-angular and vary in length from a few mm. to more than one inch. Stringers, grains, and streaks of 10%-15% pyrrhotite, minor pyrite, and a few specks of chalco-pyrite throughout the core. 15%-20% pyrrhotite at 10'-15'.

43	180°	50°	50'	0'	Noranda Exploration Co. Ltd. (1965) Hole HM-8 GM-16615 Grayish green, medium-grained, massive diabase with ophitic texture. 15% magnetite, a few grains of pyrrhotite and pyrite and a speck of chalcopyrite in core.
44	---	vertical	25'	0'	Noranda Exploration Co. Ltd. (1965) Hole BM-1 GM-16615 Conglomerate with several dark to light gray fragments resembling quartzitic fragments in a green, fine-grained matrix. Grains and streaks of pyrrhotite replace some of the fragments. 15%-20% pyrrhotite at 10'-15'. Some sections heavy with magnetite.
45	180°	80°	25'	0'	Noranda Exploration Co. Ltd. (1965) Hole BM-2 GM-16615 Conglomerate consisting of light gray to white fragments of quartzitic-appearing rock in a green very fine-grained matrix. 20%-30% pyrrhotite and traces of chalcopyrite in grains and stringers throughout the core. Massive pyrrhotite in short sections of core.

ESTRÉES TOWNSHIP

1	45°	55°	577'	70'	Rio Tinto Canadian Exploration Ltd. (1963) Hole E-1 GM-14101 Rhyolite with some interbands of tuff and agglomerate at 70'-526'. Rhyolite is pale to dark gray and, in places, chloritized. Medium- to coarse-grained gabbro at 526'-577'. 40%-50% pyrite and pyrrhotite at 271.4'-274.9' and 277.8'-278.8'. Massive, fine-grained, banded pyrite (80%) and pyrrhotite (20%) at 376'-380.6' and 425.2'-430.5'. Up to 5% disseminated pyrite and seams of pyrrhotite at 445.8', 452'-467' and 472.8'-478'. 80% pyrite and pyrrhotite at 450.2'-451.4'. Core stored at campsite on north side of Favreau lake in Estrées township for all drill-holes.

DIAMOND DRILLING DATA FOR ESTRÉES (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
2	45°	45°	192'	112.5'	Rio Tinto Canadian Exploration Ltd. (1963) Hole E2 GM-14101 Quicksand and boulders to 112.5'. Light gray to dark gray, fine- to medium-grained rhyolite with vague tuffaceous sections at 112.5'-153.0'. Greenish black, fine- to coarse-grained gabbro at 153'-192'. Bedding or schistosity at 50° to core axis at 144'.
3	0°	45°	527'	128'	Rio Tinto Exploration Ltd. (1963) Hole E3 GM-14101 Sand and boulders at 100'-128'. Rhyolite in places interbedded with tuff and agglomerate. Rhyolite grades into dacite and andesite in a few places. 40%-85% sulfides (pyrrhotite, pyrite, and in one place 3% sphalerite) as blebs, stringers, and seams over much of core at 235'-294'. 15% fine-grained, disseminated magnetite at 311'-313'. 35% pyrite, 20% pyrrhotite and 15% magnetite in cherty agglomerate at 382'-398'. Pyrite and pyrrhotite in tuff matrix as follows: 55% sulfides at 401.7'-412', 20% sulfides at 431'-452', and 15% sulfides at 480'-489'. Disseminated seams and blebs of pyrite and pyrrhotite and specks of sphalerite and chalcopyrite at other places within the core.
4	315°	55°	571'	132'	Rio Tinto Canadian Exploration Ltd. (1963) Hole E4 GM-14101 Andesite(?) at 132'-136.7'. Interbedded agglomerate, tuff, and rhyolite at 136.7'-410'. Medium- to coarse-grained, greenish black diorite at 410'-571'. A small amount of pyrrhotite and pyrite as blebs, seams and stringers, and specks of chalcopyrite in places throughout the core.

					Rio Tinto Canadian Exploration Ltd. GM-14101 30% sulfides at 288'. 20%-90% magnetite (locally massive magnetite layers), disseminated pyrrhotite, and specks of chalcopyrite at 319'-321' and 336.9'-346'. 20% sulfides consisting of layers 4" to 1' thick of pyrrhotite with specks and blebs of chalcopyrite and also of irregular blebs and seams of pyrrhotite and quartz-carbonate veinlets at 359'-378.8' in rhyolite. Banding at 40° to core axis at 140'.
5	345°	45°	607'	200'	Rio Tinto Canadian Exploration Ltd. (1963) Hole E5 GM-14101 Rhyolite with interbedded agglomerate and tuff at 200'-559.8'. Diorite at 559.8'-607'. In places from 222'-540' specks and blebs of pyrrhotite, pyrite, and chalcopyrite and in a few places magnetite. At 477'-492' and 500.6'-528'. 20%-80% magnetite in a few places; 10%-35% pyrrhotite and pyrite; and up to 1% chalcopyrite. Bedding at 50° to core axis at 310'.
6	0°	45°	604'	241'	Rio Tinto Canadian Exploration Ltd. (1963) Hole 6 GM-14101 Medium-grained gabbro (?) at 241'-302' with 1' of 3% blotchy chalcopyrite at 292'. Rhyolite, dacite, tuff, and agglomerate at 302'-596' containing disseminated seams and specks of pyrrhotite and pyrite and, in places, chalcopyrite (usually within tuff). 60% magnetite in 10" bands and blotches at 330'-340'. 10%-15% pyrrhotite, pyrite, and specks of chalcopyrite at 400.5'-411', 443'-473', and 577'-588'. 3" of 90% pyrrhotite with less than 1% chalcopyrite at 592'. Unmineralized diorite at 596'-604'. Banding in tuff at 60° to core axis at 302'-380'.
7	180°	50°	493'	181.2'	Rio Tinto Canadian Exploration Ltd. (1964) Hole E7 GM-14101 Tuff and tuffaceous rhyolite except for dark green andesite at 319'-325', 370'-377', and 442'-482.5'. Minor disseminated pyrrhotite in andesite. In places pyrite and pyrrhotite and, more rarely, chalcopyrite

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
					Rio Tinto Canadian Exploration Ltd. GM-14101 occur disseminated within tuffaceous rhyolite and tuff. Pyrite occurs in more concentrated amounts (3%-15%) at 181.5'-249' and 281'-286.7'. 3%-20% pyrrhotite and pyrite and, in a few places, small amounts of chalcopyrite over much of the core at 377'-431'. Bedding in tuff is at 20° to core axis near 181'.
8	0°	50°	450'	125'	Rio Tinto Canadian Exploration Ltd. (1964) Hole E-8 GM-14101 Clay at 0'-110'; gravel and boulders at 110'-125'. Mainly tuff, a little rhyolite and chlorite schist except for andesite at 133.3'-142.8' and 175.3'-207', and diabase at 327'-398' and 412'-450'. Andesite and diabase are not mineralized. Tuff is grayish to dark green, banded, in places chloritic, and contains quartz eyes. Tuff contains sulfide minerals as follows: 10%-15% pyrrhotite with a few large crystals of pyrite and minor chalcopyrite at 165.4'-166.4'; fairly massive pyrrhotite and pyrite over much of the core at 212'-248'; 3%-15% pyrite at 248'-268.5', with 50%-80% pyrite in two thin bands of 1' each; and 5%-10% pyrrhotite with minor chalcopyrite at 276.9'-283.2' in patches, stringers and disseminations. Banding in tuff at 60° to core axis at 125'.
9	0°	50°	557'	165'	Rio Tinto Canadian Exploration Ltd. (1964) Hole E-9 Gm-14128 Mostly tuff and a little agglomerate with a few interlayers of andesite and rhyolite. Massive banded pyrrhotite and pyrite at 423'-440.3'. 10%-50% pyrite and

					Rio Tinto Canadian Exploration GM-14128 pyrrhotite in layers and as disseminated grains, and minor chalcopyrite in tuff at 255'-261.2', 309'-315', and 473.3'-475.7'. Minor amounts of pyrite in a few other places. The andesite is medium grained and gray-green. The tuff is dark gray to green, acidic to intermediate, and contains numerous blebs or fragments of feldspar and in places is well layered (layering is at 45° to core axis). The rhyolite is greenish to light gray.
10	0°	45°	167'	148'	Evenlode Mines Ltd.--Conwest Exploration Co. Ltd.(1963) Hole 1 GM-13170-B Fine-grained, slightly chloritic andesite cut by 1/16" thick veinlets of quartz and carbonate at random orientation with 1/8" bleaching along margin giving an incipient brecciated appearance. A 1/16" grain of chalcopyrite in veinlet at 149' and 152'. Casing jammed so hole abandoned at 167' and hole 1A started. Location of drill-holes 1, 1a and 2 are shown on geophysical map GM-13170-A.
11	0°	45°	403'	150'	Evenlode Mines Ltd.-- Conwest Exploration Co. Ltd. (1963) Hole 1A GM-13170-B Andesite as in hole 1 at 150'-178.5'. At 159'-176' the number of quartz-carbonate fractures and the extent of bleaching increases imparting a brecciated appearance to the andesite. At 176'-178.5' the andesite is massive and fine grained. At 178.5'-258' predominantly tuff with thin bands of graywacke, gabbro, and andesite. At 178.5'-181' the tuff is green, fine grained and well bedded; becomes coarser grained towards the bottom of the section. The upper contact is 70° to the core axis. A few cherty beds up to 6" thick occur with the tuff. In places the tuff is graphitic and sulfide minerals are usually present. 5%-12% sulfides (and in one place 25% sulfides over 6" of core) consisting of pyrite, pyrrhotite and 0.5%-1% chalcopyrite occur within the tuff, especially the graphitic horizons. Magnetite, in places replacing chlorite, occurs within

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
					Evenlode Mines Ltd.--Conwest Exploration GM-13170-B the tuff in beds 1" to 1' thick in 3 sections each 1' to 5' long. At 258'-379', the core consists predominantly of fine-grained gabbro with a 7' and a 10' horizon of unmineralized graywacke. The remainder of the hole is fine-grained basalt with local blotches of very fine-grained pyrrhotite up to 1/2" in diameter.
12	0°	45°	397'	23'	Evenlode Mines Ltd.--Conwest Exploration Co. Ltd. (1963) Hole 2 GM-13170-B At 23'-287' greenish andesite and a little quartz-feldspar porphyry. At 287'-336' tuff with upper contact 20° to the core axis. At 336'-397' fine- to coarse-grained gabbro. At 166'-169' the andesite is silicified and there are narrow bands of pyrrhotite, pyrite, and sparse chalcopyrite. At 212'-236' small amounts of fine pyrrhotite and pyrite in medium-grained quartz-feldspar porphyry. At 315'-331' a sulfide zone with stringers of pyrite and pyrrhotite containing less than 0.2% copper.
13	0°	75°	289'	61'	Wawagosic Syndicate (1960) Dorothy Group Hole 2-1 GM-11302 Peat, sand, and clay at 0'-52'; boulders at 52'-61'. Light gray rhyolite and a little tuff and greenish chloritized rock at 61'-289'. 5%-10% disseminated sulfides occur over much of the core and 65%-100% sulfides (pyrite and pyrrhotite and, in a few places, streaks of sphalerite and chalcopyrite) 0.3'-22' thick (usually 2' to 5' thick) occur in 11 places. 5%-10% magnetite intergrown with sulfides in 4 places. Twelve assays each over 1'-6' of core showed nil to 0.005 oz. ton gold, 0.02%-0.08% copper, nil to 0.007% zinc, and nil to 0.03% nickel. Banding is at 30° to the core axis at 108'. Core

					Wawagosic Syndicate (1960) GM-11302 for many of the holes is stored at Favreau lake in Estrées township. The location of the drill-holes is shown on geophysical map GM-1225.
14	0°	72°	255'	73'	Wawagosic Syndicate (1960) Dorothy Group Hole 3-1 GM-11302 Interlayered tuff, rhyolite, dacite and andesite. Mineralization occurs throughout much of the core in all rock types and consists of 10%-15% and, in a few places, 50%-80% pyrrhotite and traces to more than 1% chalcopyrite. Eighteen assays, each from 1' to 5' of core over much of the core at 73'-77', 114.4'-117.4', and 128.1'-186.5', showed nil to 0.005 oz/ton gold, .05% to 1.16% copper (8 of the assays showed more than .30% copper and 3 assays showed more than .75% copper), and nil to .12% zinc. Layering in the tuff is at 40° to the core axis at 118'.
15	0°	50°	83'	83'	Wawagosic Syndicate (1961) Dorothy Group Hole 3-2 GM-11302 Hole abandoned in overburden.
16	0°	50°	433'	160'	Wawagosic Syndicate (1961) Dorothy Group Hole W-1 GM-11302 Rhyolite and tuff (?) to 275'. Greenstone with minor tuff and rhyolite at 275'-396.7'. Diorite at 396.7'-433'. Rocks are brecciated and sheared in places throughout the core. Trace of 15% patchy sulfides as disseminations or veinlets over much of the core at 171.8'-325'. Sulfides consist of pyrrhotite, pyrite, and, in places, traces to about .5% chalcopyrite. Up to 20% magnetite in greenstone at 279.2'-287' followed by 1.4' of 80% sulfides. Trace of chalcopyrite in fractures in diorite.

DIAMOND DRILLING DATA FOR ESTRÉES (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
17	348°	55°	331'	113'	Wawagosic Syndicate (1961) Dorothy Group Hole W-2 GM-11302 Medium gray chloritized agglomerate and tuff with cherty fragments. Up to 20% pyrrhotite, minor pyrite and a trace of chalcopyrite disseminated and in blebs over much of the core but with places containing little or no sulfides. Up to 1% chalcopyrite in places at 234'-324'. 50% finely disseminated magnetite in chloritic rock with 2% pyrrhotite and a few specks of chalcopyrite at 221.7'-223'. Minor arsenopyrite noted in 2 places. Six assays, each over .8' to 5' of core, showed no nickel, .1% copper, and up to .005 oz./ton gold.
18	0°	55°	526'	91'	Wawagosic Syndicate (1961) Dorothy Group Hole W-3 GM-11302 Agglomerate, tuff, and rhyolite to 425'. Medium-grained gabbro at 425'-526' containing a little disseminated pyrite pyrrhotite, and in places magnetite. Up to 95% pyrite and pyrrhotite in places interspersed with sections containing only disseminated sulfides from 108.3' to 228.8'. Magnetite and garnet noted in several places. Galena and 3% sphalerite in tuff at 108.3'-110'. Scattered patches of pyrrhotite and pyrite and up to .5% chalcopyrite in a few places at 228.8'-371.6'. Seven assays show no zinc (7.40% zinc in one assay over 1.7'); two assays show .11 to .33 oz./ton silver and no gold.
19	0°	55°	329'	142'	Wawagosic Syndicate (1961) Dorothy Group Hole W-4 GM-12009 Agglomerate, tuff, and rhyolite containing 30%-60% pyrrhotite and pyrite and, in many places, 10%-15% magnetite at 142'-255.2'. Interlayered and unmineralized gabbro and andesite at 255.2'-329'.

20	325°	55°	339'	45'	Wawagosic Syndicate (1961) Dorothy Group Hole W-5 GM-12009 Medium- to coarse-grained olivine diabase with small amounts of disseminated magnetite at 45'-133.6' and 168.8'-215.7'. White agglomerate with cherty fragments and locally granitized, containing 1%-10% pyrite, specks of sphalerite, and 30% magnetite at 162'-165.7'. Rhyolite containing 1%-2% pyrite, minor chalcopyrite and sphalerite (1%-2% sphalerite over 4') in fractures at 224'-244.5'. Aplite at 215'-224' and 263.5'-283' with 10% pyrite in two zones of 1 foot each and a few specks of chalcopyrite. Fine- to medium-grained unmineralized syenite at 283'-339'.
21	0°	50°	605'	66'	Wawagosic Syndicate (1961) Dorothy Group Hole W-6 GM-12009 Argillaceous graywacke and some arkosic graywacke, locally iron-bearing with 5%-40% (usually 10%-30%) magnetite and hematite at 60'-66.8' and 181.7'-541'. Small amounts of pyrite in graywacke and iron-formation. Graywacke is fine grained and gray-green to green. Layering is at 45° to the core axis and possible tops face the collar of the hole.
					GRASSET TOWNSHIP
1	178°	50°	402'	205'	Mining Corporation of Canada Ltd. (1959) Hole G1-1 GM-8797 Sheared and granitized andesitic tuff and breccia cut by a dike of aplite and granite. Schistosity at 70° to core axis.
2	180°	50°	400'	42'	Mining Corporation of Canada Ltd. (1959) Hole G1-2 GM-8797 Sheared recrystallized, and, in places, granitized andesite, tuff, and breccia cut by pegmatite and granite. Tuff contains biotite and a little garnet. A little pyrite and chalcopyrite in andesine at 124'-158', 266'-297, and 361'-384.2'. 75% pyrite at 384.1'-385.9' and a little disseminated pyrite at 385.9'-400'.

DIAMOND DRILLING DATA FOR GRASSET (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
3	180°	50°	395'	217'	Mining Corporation of Canada Ltd. (1959) Hole G1-3 GM-8797 Siliceous andesite, in part tuffaceous, and a little altered gabbro. Andesite is slightly granitized and sheared at 268.5'-395'. Two dikes of feldspar porphyry, a little pyrite, and stringers of quartz-carbonate at 268.5'-395'.
4		verti-cal	about 80'		John I Cummings "In Trust" (1965) Hole 1 (GM-16200) Andesite with mineralization. Core was not logged in more detail.
5		verti cal	about 80'		John I Cummings "In Trust" (1965) Hole 2 (GM-16200) Andesite with no mineralization. Core was not logged in more detail.
6	18°	50°	725'	98'	Buffadison Gold Mines Ltd. (1959) Hole 1 GM-8461-B Very fine sandy clay with no boulders at 0'-98'. Reddish, medium- to coarse-grained biotite and hornblende granite at 98'-239'. Intermixed granite and sheared andesite to rhyolite at 239'-725'. Sparse pyrite mineralization throughout volcanic rock and some concentration of pyrite, chalcopyrite and sphalerite at 599.5'-610' assaying 0.03 oz./ton gold, 0.2% copper, and 0.15% zinc. Shearing is at 45° to core axis.

7	192°	55°	504'	91'	Buffadison Gold Mines Ltd. (1959) Hole 2 GM-8461-B Muskeg at 0'-5'; fine sandy clay with no boulders at 5'-91'. Mostly gray andesite with some disseminated pyrite at 91'-177'. Mostly pink rhyolite, some fine-grained and some fragmental zones at 177'-346'. Andesite at 346'-504' with banded sulfides at 450'-504'. Sulfides are heaviest at 475'-485'. Shearing and foliation are at 40° to core axis.
8	181°	55°	371'	87'	Buffadison Gold Mines Ltd. (1959) Hole 3 GM-8461-B Fine-grained sandy clay at 0'-87'. Fine-grained rhyolite, fragmental in places at 87'-290'. Andesite to diabase at 290'-371' with "fair to heavy" banded sulfides at 300'-310' and 350'-360'. Shearing is at 40° to the core axis.
9	180°	45°	595'	142'	United New Fortune Mines Ltd. (1959) Hole 1 GM-8620-B Narrow andesitic flows, andesitic tuff, and fragmental andesite at 142'-555'. Coarse-grained quartz-feldspar porphyry dike at 555'-595'. About 1% pyrite noted in places. Andesite is dark greenish gray with an irregular dark reddish cast, fine grained, dense, and shattered throughout with fine hair-like quartz-carbonate seams. Tuff is finely banded and fine grained. Layering is at 45° to the core axis. Location of holes is shown on magnometer map GM-8620-A.
10	180°	45°	577'	178'	United New Fortune Mines Ltd. (1959) Hole 2 GM-8620-B Narrow layers of massive and sheared andesitic flows, tuff and fragmental rock. Some patches of hematite near top of core. Tuff is coarsely to well bedded. Bedding in tuff is at 60° to the core axis.
11	180°	45°	160'	160'	United New Fortune Mines Ltd. (1959) Hole 3 GM-8620-B Bedrock encountered at 160'. Hole terminated due to weather.

DIAMOND DRILLING DATA FOR GRASSET (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
12	335°	60°	202'	8'	Subercase Syndicate (1957) Hole 1 GM-5226 Medium- to fine-grained, dark green to gray andesite with numerous calcite stringers. In a few places minor pyrite and/or pyrrhotite in stringers and blebs with minor chalcopyrite. Pyrite common in calcite stringers. Three assays showed no zinc.
13	20°	45°	301'	12'	Subercase Syndicate (1957) Hole 2 GM-5226 Very fine-grained, dark green to gray andesite with numerous calcite stringers at 12'-301'. Finely disseminated pyrite with chalcopyrite and a few 1/8"-1/2" stringers and blebs of chalcopyrite noted in 7 places each 2"-2.5' thick. Three assays show a maximum of 0.37% copper and no zinc. Syenite(?) at 301'.
14	290°	45°	202'	12'	Subercase Syndicate (1957) Hole 3 GM-5226 Very fine-grained dark green to light gray andesite with calcite stringers. Two stringers of pyrite and chalcopyrite 1/8" and 1/4" wide. Minor pyrite (in one place with a little chalcopyrite) noted in 3 places up to 2.5' thick. Two assays showed a maximum of 0.09% copper and no zinc.
15	20°	45°	249'	9'	Subercase Syndicate (1957) Hole 4 GM-5226 Very fine-grained, dark green-gray to brown andesite with stringers of calcite and pyrite and in a few places disseminated pyrite and chalcopyrite. Ten assays of about 5' each at 14'-152' showed no zinc and a maximum of 0.01% copper.

JOUTEL TOWNSHIP

1	0°	46° to 30°	496'	10'	Dome Exploration (Quebec) Ltd. (1962) Joutel Claim Group Hole J-1 GM-15190-A Interlayered dacite lava and tuff at 10'-270'. Quartz diorite at 270'-496'. Lava is massive, medium grained, in places pillowed, and contains a few stringers of chalcopyrite and sphalerite, threads of pyrrhotite, and in places, disseminated cubical pyrite. Tuff is dark to medium gray, in places lightly to highly graphitic; where highly graphitic it contains about 5% nodular pyrite. Bedding is at 60° to the core axis. Five assays, each over 1'-6' of core in tuff, showed .07%-.12% copper, a trace of gold and no silver or zinc. One assay over 1' of lava showed 2.55% copper and no gold or silver. Location of drill-holes 1 through 6 is shown on geophysical map GM-15833.
2	0°	45° to 30°	256'	9'	Dome Exploration (Quebec) Ltd. (1962) Joutel Claim Group Hole J-2 GM-15190-A Dacite lava, 22' of tuff, and quartz diorite. Lava is gray, pillowed in places, and locally contains finely disseminated pyrrhotite, pyrite, chalcopyrite, and sphalerite. Tuff is laminated, highly graphitic and contains 10%-15% pyrite in nodules and laminae. Two assays in lava over 1.5' and 2.6' of core showed .10%-.12% copper and no lead, gold, silver, or zinc. Six assays in graphitic tuff showed traces to .72% zinc, .10%-.17% copper, a trace of lead and no gold or silver.
3	20°	40° to 37°	371'	6'	Dome Exploration (Quebec) Ltd. (1962) Joutel Claim Group Hole J-3 GM-15190-A Core consists of 59' of siliceous tuff followed downward by lava, by 15' of carbonaceous tuff, and by quartz diorite. Siliceous tuff is fine grained, cherty in places, and, in places contains scattered aggregates and seams of pyrite, pyrrhotite, and traces of chalcopyrite and sphalerite. 15' of carbonaceous tuff contains appreciable pyrite, pyrrhotite and a little chalcopyrite. The lava contains a few

DIAMOND DRILLING DATA FOR JOUTEL (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
					Dome Exploration (Quebec) Ltd. GM-15190-A small lenses of pyrrhotite and pyrite and 3%-4% disseminated pyrite in places. Three assays over 2.5'-5' of core showed no zinc, a trace to .11% copper and nil to .01 oz./ton gold. The quartz diorite is not mineralized.
4	20°	50°	400'	25'	Dome Exploration (Quebec) Ltd. (1962) Joutel Claim Group Hole J-4 GM-15190-A Clay and sand overburden. Siliceous tuff and quartz diorite. Fine pyrrhotite and chalcopyrite in some carbonatized fractures in quartz diorite. Siliceous tuff is light gray with some carbonaceous sections. Pyrrhotite, pyrite, chalcopyrite and sphalerite are present in places along bedding planes and along fractures in tuff. Tuff is brecciated in places and cemented with carbonate. Twelve assays over 1.3'-5' of core showed no zinc, no gold, no silver, and a trace to .15% copper.
5	20°	44°	370'	21'	Dome Exploration (Quebec) Ltd. (1962) Joutel Claim Group Hole J-5 GM-15190-A Tuff, in places graphitic; lava; and some quartz diorite. Lava is green, pillowed or massive, and in a few places contains stringers of pyrite, pyrrhotite, or chalcopyrite. Quartz diorite is gray-green and contains no sulfides. Tuff is graphitic in many places and usually contains some sulfides disseminated or in bands. In one place, up to 25% sulfides in graphitic tuff and nodules of pyrrhotite. Some graphitic bands are contorted. Five assays of 2'-5' showed nil to .82% zinc, a trace to .33% copper and a trace of gold.

6	20°	46°	359'	2'	Dome Exploration (Quebec) Ltd. (1962) Joutel Claim Group Hole J-6 GM-15190-A Sand overburden. Quartz diorite, tuff and some lava. Lava contains some graphitic material. Quartz diorite contains a little fine magnetite, disseminated pyrrhotite, and, in places, fragments of digested graphitic tuff. Tuff is siliceous and cherty and in many places graphitic with laminated or nodular pyrite. A 3"- layer of massive pyrite in tuff. Laminae at 70° to core axis. Ten assays over 2.5'-5' of core showed nil to a trace of zinc, .07%-.23% copper and no gold.
7	207°	54° to 44°	374'	41'	Dome Exploration (Quebec) Ltd. (1962) Harricana Claims Hole J-7 GM-15190-B Diorite, andesite, tuff, and talc-sericite schist. Diorite is not mineralized. Andesite is gray-green, schistose, and spherulitic in places. In one section the tuff is green, siliceous, fine grained, cherty, well laminated and contains some pyrite. In another section, the tuff is graphitic, dark gray to black, and contains a little pyrite in streaks, nodules, or disseminations. Talc sericite schist (originally andesite?) is medium to light gray, locally carbonaceous, and contains some disseminated pyrite. Schistosity is at 40° to the core axis. Five assays, each over 2.1'-5' of core, showed no zinc, .07%-.21% copper, and nil to .02 oz./ton gold. The location of hole 7 is shown on geophysical map GM-15772. The drill core was left at the drill-hole.
8	40°	53° to 43°	320'	52'	Dome Exploration (Quebec) Ltd. (1963) Claim Group Northeast Joutel Township Hole J-8 GM-13877 Peat and organic material at 0'-5'. Glacial clay at 5'-47'. Sand, boulders and clay at 47'-52'. Cherty carbonaceous sedimentary rock, tuffaceous sedimentary rock, and a few narrow sections of massive pyrite. Cherty carbonaceous rock is light gray, very fine grained, has some fine disseminated pyrite and has a clastic appearance. A number of sections of 1' or more of 30% to massive pyrite at 141'-191'. Tuffaceous sedimentary rock is poorly bedded, pale gray-green, fine- to medium-grained and in places

DIAMOND DRILLING DATA FOR JOUTEL (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
					Dome Exploration (Quebec) Ltd. GM-13877 graphitic. Pyrite occurs in distinct laminae, reniform aggregates or ovoid grains in areas of higher graphite content in the tuff. Sixteen assays over 1.1'-5' of core showed no zinc, .10%-.20% copper, no gold and nil to 1.27 oz./ton silver. The drill core for holes 8 and 9 is stored about 1,000' north of the northeast corner of Jouve lake in Joutel township.
9	40°	51° to 46°	310'	44'	Dome Exploration (Quebec) Ltd. (1963) Claim Group Northeast Joutel Township Hole J-9 GM-13877 Organic material at 0'-4'. Glacial clay at 4'-40'. Sand and boulders at 40'-44'. A sequence of sedimentary rocks consisting of gritty sedimentary rock; graphitic, siliceous, pyritic tuff; tuff and agglomerate, and sections of graphite and pyrite. Gritty sedimentary rock is light gray, varies from cherty to gritty, and contains from about 5% to abundant pyrite. Graphitic siliceous pyritic tuff is very fine grained, distinctly laminated, and contains various proportions of graphite, pyrite and silica. 2%-10% pyrite in nodules or contorted laminae in graphitic tuff. Pyrite and graphite occur in much of the core at 174'-310'. Twenty-one assays each over 1.6' to 5' of core showed no zinc, .05%-.20% copper, no gold, and up to .46 oz./ton silver.
10	225°	45°	475'	75'	Realm Mining Corporation Ltd. (1961) Hole 1 GM-12903 Chloritized andesite with a few scattered patches of disseminated pyrite.

11	45°	45°	525.3'	167'	Realm Mining Corporation Ltd. (1961) Hole 2 GM-12903 Light green andesite, in places sheared with some lightly mineralized sections of disseminated pyrite.
12	26°	45° to 32°	750'	14'	Fox Lake Mines Ltd. (1965) Hole 1 GM-16948 Interlayered rhyolite, agglomerate, sedimentary rock, and rhyolitic tuff. 1% pyrite in blebs, streaks, and disseminations at 476.5'-514.5' in rhyolitic tuff. Rhyolite is light greenish gray and contains eyes of quartz. Layering is at 30° to core axis at 242.5'. Five assays each over about 5' of core showed up to .01 oz./ton gold.
13	34°	45° to 15°	903'	22'	Fox Lake Mines Ltd. (1965) Hole 2 GM-16948 Grayish green, layered rhyolitic, tuff, agglomerate, and slaty, green to black, layered sedimentary rock (graywacke?). 10%-60% fine, disseminated pyrite in sedimentary rock at 440.8'-448' and 462.7'-472.2'. Four assays over 1.1'-7.2' of core showed nil to .005 oz./ton gold. Layering is at 75° to core axis.
14	38°	45° to 28°	500.5'	18'	Fox Lake Mines Ltd. (1965) Hole 3 GM-16948 Green agglomerate with small light colored fragments up to 2", light gray rhyolite, and black, slaty, layered, sedimentary rock. Mineralized zone in agglomerate of 20%-70% pyrite at 355'-376.5'. Six assays each over 3'-5' of core showed up to .01 oz./ton gold. Bedding is at 70° to the core axis.
15	40°	45° to 31°	749'	86'	Fox Lake Mines Ltd. (1965) Hole 4 GM-16948 Green, medium-grained, dacite porphyry; greenish to light gray rhyolite; green agglomerate with stretched rhyolite fragments; and yellowish rhyolite. 5%-20% fine pyrite in patches and blebs at 442.8'-616.3'. Nine assays each over 1'-5.8' of core showed nil to .01 oz./ton gold.

DIAMOND DRILLING DATA FOR JOUTEL (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
16	40°	45° to 38°	735'	82'	Fox Lake Mines Ltd. (1965) Hole 5 (GM-16948) Cream to greenish gray rhyolite; green chloritic tuff; green chloritic agglomerate; and gray to black, slaty, layered, sedimentary rock (graywacke?). 40%-60% blotchy pyrite in sedimentary rock at 630'-643', and 650'-657'. Bedding is at 85° to core axis. Four assays, each over 2.8'-5' of core showed nil to a trace of gold.
17	40°	45° to 26°	808'	64'	Fox Lake Mines Ltd. (1965) Hole 6 (GM-16948) Gray to green rhyolite, some tuff, and agglomerate, and, in places, black, slaty, graphitic, sedimentary rock. 4%-5% nodular pyrite in sedimentary rock at 775'-797.2'.
18	40°	45° to 15°	916.5'	56'	Fox Lake Mines Ltd. (1965) Hole 7 (GM-16948) Light gray, layered rhyolite; green tuff; agglomerate with rhyolitic fragments up to 2"; graywacke; black slate. Bedding is at 60° to the core axis. 20% nodular pyrite in sedimentary rock at 620'-622.4' and pyrite streaks in other places in sedimentary rock.
19	40°	45° to 35°	715'	26'	Fox Lake Mines Ltd. (1965) Hole 8 (GM-16948) Green dacite; gray, layered rhyolite; black, slaty, sedimentary rock; and gray-green andesite. Bedding is at 65°-70° to the core axis.
20	40°	45°	735'	57'	Fox Lake Mines Ltd. (1965) Hole 9 (GM-16948) Green andesite and pale green spherulitic dacite to rhyolite.

21	40°	45° to 25°	750'	34'	Fox Lake Mines Ltd. (1965) Hole 10 GM-16948 Light gray, layered rhyolite; chloritic tuff; black, slaty, sedimentary rock; porphyry; and agglomerate. Up to 3% streaks of fine pyrite in places throughout the core. 90% nodular pyrite in slaty sedimentary rock in a 5' zone.
22	206°	45° to 30°	503'	18'	Glenburke Mines Ltd. (1961) Hole 1 (GM-12526) Diorite with disseminated magnetite; sheared volcanic rock; and andesite. Chlorite schist with pyrite disseminated in seams, and in stringers; and 2' of 60% pyrite at 193.5'-252'.
23	217°	45° to 32°	507'	28'	Glenburke Mines Ltd. (1961) Hole 2 (GM-12526) Diorite, andesite, carbonatized silicified tuff and schistose lava.
24	206°	45° to 30°	301'	18'	Glenburke Mines Ltd. (1961) Hole 3 (GM-12526) Chlorite-sericite schist (schistose volcanic rock); andesite; diorite.
25	206°	45° to 41°	301'	38'	Glenburke Mines Ltd. (1961) Hole 4 (GM-12526) Sericite schist interlayered with some chlorite schist. A few veins of quartz and carbonate. Disseminated pyrite and pyrrhotite in a few places.
26	206°	45° to 32°	205'	12'	Glenburke Mines Ltd. (1961) Hole 5 (GM-12526) Chlorite-sericite schist; tuff; agglomerate; and iron-formation. Iron-formation of quartz, jasper, and hematite with 2 grains of chalcopyrite in 1' of core. The location of the drill-holes is shown on geophysical map GM-11549.

DIAMOND DRILLING DATA FOR JOUTEL (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
27	206°	45°	200'	26'	Glenburke Mines Ltd. (1961) Hole 6 (GM-12526) Andesite and dacite. 3%-90% pyrite at 62.4'-71' and 99'-117'.
28	206°	45°	250'	16'	Glenburke Mines Ltd. (1961) Hole 7 (GM-12526) Andesite, diorite, and dacite. 30%-80% pyrite at 153'-166.8', 175.3'-177.3', 187'-195.3', and 213.6'-219'.
29	30°	55° to 33°	501'	18'	Juma Mining & Exploration Co. Ltd. (1965) Hole JJ-1 (GM-17043) Dacite, followed downward by metadiorite, by green arenaceous tuff, and by dacite. Minor pyrite and chalco-pyrite in a few places. Two assays showed no gold or silver and .01% copper.
30	30°	45° to 33°	501'	6'	Juma Mining & Exploration Co. Ltd. (1965) Hole JJ-2 (GM-17043) Interlayered dacite, tuff, metadiorite and andesite. Three assays showed no gold or copper.
31	30°	45°	507'	10'	Juma Mining & Exploration Co. Ltd. (1965) Hole JJ-3 (GM-17043) Dacite, tuff, metadiorite, and a little rhyolite. A little fine pyrrhotite and chalcopyrite on slip planes in rhyolite, and some pyrite in a quartz vein. Carbonate zone of calcite-ankerite, and quartz with a few grains of pyrite and sphalerite, at 293.5'-298.5'. Some ankerite in tuff at 298.5'-400.2'. Three assays showed nil to .04 oz./ton gold.

32	166°	45°	160'	108.3'	Marimac Mines Ltd. (1966) Hole 1 (GM-17937) Diorite at 108.3'-114.3'. Slaty, graphitic, black sedimentary rock, in places with up to 25% nodules of pyrite at 114.3'-160'.
33	346°	45°	200'	61'	Marimac Mines Ltd. (1966) Hole 1a (GM-17937) Black to dark gray sedimentary rock with 5% pyrite nodules at 61'-127.5'. Breccia of dark altered rhyolite fragments in calcite matrix with 10%-20% finely disseminated pyrite at 127.5'-135.8'. Diorite at 135.8'-200'. Three assays each over 2'-3' of core showed no gold.
34	350°	45°	204'	123'	Marimac Mines Ltd. (1966) Hole 2 (GM-17937) Green diorite at 123'-124' and 186'-204'. Black, slaty, sedimentary rock with 5%-10% nodules of pyrite at 155'-169.4'. Breccia with dark rhyolitic fragments in calcite matrix and 5%-10% fine, disseminated pyrite at 170'-186'. One assay of 10' showed .005 oz./ton gold.
35	177°	45°	306'	60'	Marimac Mines Ltd. (1966) Hole 3 (GM-17937) Interlayered diorite, andesite, and black, slaty sedimentary rock with about 5% or more nodular pyrite.
36	161°	45°	202'	100'	Marimac Mines Ltd. (1966) Hole 4 (GM-17937) Gray-green andesite, in places with disseminated pyrite and a little pyrrhotite and chalcopyrite.
37	158°	45°	182'	102'	Marimac Mines Ltd. (1966) Hole 5 (GM-17937) Pale greenish gray, fine-grained andesite.

DIAMOND DRILLING DATA FOR JOUTEL (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
38	160°	45°	512'	145'	North Devon Mines Ltd. (1966) Hole 1 GM-17751 Massive, fine-grained, even-textured, olive-green andesite with stringers and veins of white calcite up to 2'. Three assays each of 1.5'-2' of core showed nil to .12 oz./ton silver and no gold.
39	225°	45°	402'	33'	Glenn Explorations Ltd. (1965) Hole 1 (GM-16823) Altered rhyolite with stringers and patches of quartz with fine pyrite, and schistose basic rock. Three assays showed nil to .05 oz./ton gold.
40 41 42	30°				Location of holes shown on location map (GM-16948) of Fox Lake Mines Ltd. Possibly drilled by Equity Explorations Ltd. Rhyolite and andesite. Mineralized.
					LA GAUCHETIÈRE TOWNSHIP
1	0°	45° to 40°	309'	6'	Noranda Exploration Co. (1965) Mount Ste-Hélène Group Hole MS-1 GM-16551 Gray to greenish gray dacite at 6'-123'. Purplish to bluish gray to greenish, fine-grained, very hard and siliceous rhyolite, in places showing a spherulitic or amygdaloidal texture at 123'-309'. A few sections in rhyolitic with heavy magnetite and less than 1% pyrrhotite. Streaks and specks of pyrite amounting to less than 0.5% in places in rhyolite. A speck of chalcopyrite at 138'. 2%-4% pyrrhotite in stringers at 123'-125'.

2	0°	45° to 42°	354'	70'	Noranda Exploration Co. (1965) Mount Ste-Hélène Group Hole MS-2 GM-16551 Mostly graphitic schists interlayered with lesser amounts of gray, fine-grained, intermediate volcanic rock. 2%-15% disseminated pyrite in a few places in metavolcanic rock. 5%-60% pyrite in much of graphitic schist, mostly as round grains up to 1" in diameter and in places as stringers and patches. A few stringers of massive, fine-grained pyrite are up to 5" thick. Schistosity at 65° to core axis.
3	175°	40°	502.5'	11'	Southern Union Oils Ltd. (1958) Hole S-1 GM-9000-B Altered andesite and a little gabbro and diorite. Very finely disseminated pyrite, pyrrhotite and, in places, chalcopyrite and sphalerite in andesite, especially at 64'-195'. Finely disseminated pyrite and pyrrhotite in much of the core. A few stringers of massive pyrrhotite or sphalerite and splashes of pyrrhotite and chalcopyrite. A few quartz-carbonate, quartz, and epidote veinlets, some of which are brecciated. Twenty-seven assays over widths of 0.4'-3.4' and covering much of the core at 64'-195' showed: 0.01%-0.14% copper, up to 3.33% zinc, and no gold or silver. Assays of 2.32% and 3.33% zinc were over 2' and 0.8' of core containing sphalerite veinlets.
4	355°	37°	447.5'	10'	Southern Union Oils Ltd. (1958) Hole S-2 GM-9000-B Andesite, in places chloritized, epidotized, sheared, and mineralized with pyrite, pyrrhotite and, in places, a little chalcopyrite and sphalerite. Minor gabbro. Some brecciated zones of mineralized quartz-epidote in andesite. Thirteen assays showed .01%-.08% copper.
5	180°	55°	388'	2'	Southern Union Oils Ltd. (1958) Hole S-3 GM-9000-B Medium-grained gabbro in places with low sulfide content to 147'. At 147'-388' medium- and coarse-grained andesite, rich in chlorite and epidote and, in places, with pyrrhotite and pyrite and spotty chalcopyrite; and a little gabbro. Five assays show .02%-.04% copper.

DIAMOND DRILLING DATA FOR LA GAUCHETIÈRE (Cont. TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
6	180°	75°	507'	4'	Southern Union Oils Ltd. (1958) Hole S-4 GM-9000-B Gabbro with sulfides along slip planes to 168.9', followed by medium-grained andesite with a few carbonated breccia zones and in places pyrite, pyrrhotite, spotty chalcopyrite, and (in one place) sphalerite.
7	180°	55°	567'	20.5'	Southern Union Oils Ltd. (1958) Hole S-5 GM-9000-B Coarse-grained gabbro with small amounts of sulfides to 107' followed by medium-grained, altered andesite in places with carbonate, disseminated pyrrhotite and spotty chalcopyrite. Three assays of about 2' each showed no gold and .01% to .05% copper.
8	0°	45°	353'	35'	Southern Union Oils Ltd. (1958) Hole S-6 GM-9000-B Andesite and dacite flows, in places with disseminated pyrrhotite and pyrite and spotty chalcopyrite.
9	180°	45°	593'	34'	Southern Union Oils Ltd. (1958) Hole S-7 GM-9000-B Dacite and some andesite, in places with finely disseminated pyrrhotite, some pyrite and spotty chalcopyrite. Some sulfides along shear planes. Nine assays 2'-4' in width showed no gold and a trace to .09% copper.

10	180°	45°	509'	41'	Southern Union Oils Ltd. (1958) Hole S-8 GM-9000-B Medium-grained andesite, in places sheared and slightly brecciated. Some altered gabbro. Pyrite, pyrrhotite and minor chalcopyrite in places, and a few thin zones of up to 40% magnetite in the andesite. The location of hole 8 is shown on geophysical map GM-9000-A
11	180°	45° to 40°	499'	12'	Northcal Oils Ltd. (1958) Hole N-1 GM-9347-B Meta-andesite, tuff, diorite and some gabbro. Pyrrhotite and spotty chalcopyrite in brecciated quartz veinlets in diorite and, in places, in the rocks and in zones of alteration. Sphalerite noted in one place. Twelve assays at 146'-190.4' showed 0.01%-0.09% copper, no silver, and a trace of gold in one sample.
12	0°	45° to 33°	512'	6'	Northcal Oils Ltd. (1958) Hole N-2 GM-9347-B Andesite and minor gabbro. Pyrrhotite, pyrite and spotty chalcopyrite in quartz-biotite alteration zones and in some brecciated zones. Up to 20% pyrrhotite in andesite at 311'-312'. Sphalerite stringers in one place. Seven assays showed .02%-.21% copper, no gold, and a trace of zinc.
13	200°	45°	669'	36'	Northcal Oils Ltd. (1958) Hole N-3 GM-9347-B Anorthosite with some dacite and andesite. Scattered pyrite, pyrrhotite and in one place specks of chalcopyrite. Two assays showed no nickel, no silver, and a trace of gold.
14	330°	45°	400'	60'	Newlund Mines Ltd. (1961) Hole L-1 GM-11355 Dark gray-green to black, chloritic, fine- to medium-grained, highly silicified, extremely hard, basic spherulitic pillowed lava. 2" of pyrite at 63'.

DIAMOND DRILLING DATA FOR LA GAUCHETIÈRE (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
15	330°	45°	500'	32'	Newlund Mines Ltd. (1961) Hole L-2 GM-11355 Mostly basic, dark gray-green, fine- to medium grained, amygdaloidal and spherulitic pillowed lava with scattered pyrite and pyrrhotite and, in places, a little chalco-pyrite. Layered tuff with up to 3% pyrrhotite and pyrite at 59'-72' and 86'-94'.
16	340°	45°	400'	30'	Newlund Mines Ltd. (1961) Hole L-3 GM-11355 Fine- to medium-grained, dark green, massive volcanic rock with some quartz-carbonate stringers. Lamprophyre dike at 134'-137'. No mineralization.
17	330°	45°	400'	25'	Newlund Mines Ltd. (1961) Hole L-4 GM-11355 Fine-grained, dark green to black gabbro, basic volcanic rock and spherulitic lava. Some fine pyrite in basic volcanic rock. Cherty tuff with streaks and splashes of pyrite and pyrrhotite and a few grains of chalcopyrite at 285'-310' and at 350'-363'. Mineralization is mainly in the tuff.
18	150°	45°	300'	62'	Newlund Mines Ltd. (1961) Hole L-5 GM-11355 Dark gray-green to black spherulitic pillow lava with streaks and splashes of pyrite. Streak of pyrrhotite and a grain of chalcopyrite at 268'.

19	225°	60°	490'	73'	Lake Osu Mines Ltd. (1962) Hole 1 GM-11816 (True location of this hole is 1,700' east of the location shown on geological map 1356). Medium-grained massive gabbro containing 3%-5% disseminated magnetite at 73'-222'. At 222'-370' granodiorite with 3%-5% disseminated magnetite to 344' and containing a little disseminated pyrite in a few places. Diorite at 370'-431'. Andesite with minor rhyolite at 431'-490'.
20	180°	50°	411'	56'	Lake Osu Mines Ltd. (1962) Hole 2 GM-11816 Fine- to medium-grained volcanics with a few specks of pyrrhotite, pyrite, and chalcopyrite at 56'-174'. Tuff at 174'-288.2'. Light green, layered trachyte at 288.2'-411'. Narrow veinlets of pyrrhotite in places at 200'-411'. Sulfide zone of 30% pyrrhotite with some chalcopyrite and sphalerite at 220.5'-223.0'. 50% pyrrhotite and pyrite with some chalcopyrite and sphalerite at 286'-288.2'. 15% pyrrhotite and pyrite in veinlets at 344'-350' with sphalerite at 349'. Bedding in tuff is at 40° to the core axis at 220'.
21	180°	45°	400'	36'	Iso Uranium Mines Ltd. (1961) Hole B-1 GM-11351 Spherulitic pillowed lava and fine-grained, dense, cherty, pinkish white, acidic volcanic rock, over entire core except for coarse-grained massive green gabbro at 259'-318'. Minor pyrite in places with a few grains of chalcopyrite at 36'-160', especially along edges of pillows. Narrow streaks of pyrite and a few grains of chalcopyrite at 110'-115'.
22	0°	45°	400'	87'	Iso Uranium Mines Ltd. (1961) Hole B-2 GM-11351 Massive, dark to light gray-green, non magnetic, coarse-grained gabbro at 87'-385'. A few streaks of fine pyrite and pyrrhotite. Coarse-grained, massive granite with inclusions of altered gabbro at 385'-400'.

DIAMOND DRILLING DATA FOR LA GAUCHETIÈRE (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
23	0°	45°	594'	48'	Noranda Exploration Co. Ltd. (1962) Kitchigama Programme. Timmins Group Hole T-1 GM-12508 Mostly acidic metavolcanic rock including pyroclastic rock and sections resembling metarhyolite. Some lamprophyre dikes. Fine-grained metagabbro, with up to 20% magnetite at 121'-164'. Abundant pyrite in metavolcanic rock at 435'-450'.
24	0°	45°	390'	65'	Franksin Mines Ltd. (1959) Hole F-1 GM-8804-C Intermediate to basic, fine-grained, greenish-gray lava injected by quartz and carbonate, in a few places with up to 5% disseminated pyrite along fractures and in stringers. Some acidic bands with pyrite in stringers and fractures. Some diorite and gabbro. Bedding at 65° to core axis.
25	180°	45°	657'	55'	Franksin Mines Ltd. (1959) Hole F-2 GM-8804-C Thin-bedded volcanic rock (some of it probably tuff) at 55'-299.6' and 592'-648'. Granite at 299.6'-311', and 648'-657'. Diorite, dacite, and rhyolite at 311'-592'. 1/2" stringer of garnet and chalcopyrite at 219'. Disseminated pyrite in rhyolitic fragmental flow at 460'-491', 593.5'-594.1', and 624'-648'. Bedding in tuff at 45° to core axis.
26	0°	50°	536'	155'	Franksin Mines Ltd. (1959) Hole F-3 GM-8804-C Andesitic lava, in places sheared, chloritized and fragmental. Some pyrite in places. Contacts of rock types at 60° to 70° to core axis.

27	175°	45°	505'	105'	St. Mary's Explorations (1959) Hole 1 GM-13976 Interlayered "K" lavas and some "K" sedimentary rocks. A few cubes and stringers of pyrite and blebs of pyrrhotite in lava. Sedimentary rocks contain graphite in places and 10%-20% pyrite throughout. Assays of mineralized sections in sedimentary rock show up to .07 oz./ton gold. The location of St. Mary's 3 drill-holes is shown on geophysical map GM-13986.
28	332°	45°	505'	135'	St. Mary's Explorations (1959) Hole 2 GM-13976 Green "K" lava in places lightly carbonated. 5% magnetite at 279'-400'. 1/2%-1% pyrite at 135'-279'. 5%-10% pyrite in places in narrow zones at 401.4'-505'. 5% magnetite, 2% pyrite, and stringers of calcite and quartz at 433'-505'. Two assays showed nil to a trace of gold.
29	180°	50°	550'	132'	St. Mary's Explorations (1959) Hole 3 GM-13976 Light gray, schistose "K" lava throughout nearly all of core with a few blebs or cubes of pyrite and 5%-10% pyrite at 312'-338'. Black graphitic zone of "K" sedimentary rocks with minor pyrite at 300'-312.2'. A trace of gold.
					LA PELTRIE TOWNSHIP
1					Paudash Mines Ltd. (1959) Hole 59-1 The drill log was not available. According to the Northern Miner of April 6, 1961, page 12, "Six feet of continuous core at the 290-foot horizon assayed 7.5% zinc and 0.50% copper." Hole 61-1 was drilled underneath 59-1.

DIAMOND DRILLING DATA FOR LA PELTRIE (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
2					Paudash Mines Ltd. (1959) Hole 59-2 The drill log was not available. According to the Northern Miner of April 6, 1961, page 12 "Six feet of continuous core at the 290 foot horizon assayed 4.95% zinc and 0.48% copper." Hole 61-2 was drilled underneath 59-2.
3	180°	60°	586'	105'	Paudash Mines Ltd. (1961) Hole 61-1 GM-11354 Interlayered arenite and argillite to 445'. Agglomerate and tuff at 445'-586'. Argillite is fine grained and massive or layered. Arenite is massive, medium grained and, in places, graphitic, and contains argillaceous fragments and sections. Nodular and disseminated pyrite occur in a few places, especially in graphitic sections. Chalcopyrite noted at 443'. Layers in argillite are at 45° to the core axis. According to the Northern Miner of April 6, 1961, page 12, "88 feet of sulfide minerals were noted at about the 400-foot horizon. Three feet of continuous core showed 8.2% zinc and 1.45% copper."
4	180°	60°	561'	78'	Paudash Mines Ltd. (1961) Hole 61-2 GM-11354 Feldspathic dike with quartz phenocrysts to 153'. Agglomerate, tuff, and possibly a little andesite at 153'-537'. In places, the tuff is layered or graphitic. In places, there is up to 40% massive pyrrhotite which, in some places, is associated with graphitic tuff. Pyrite replaces the tuff. Chalcopyrite cuts pyrrhotite in one place. Layers in tuff are at 30° to core axis.

5	180°	60°	327'	38'	Paudash Mines Ltd. (1961) Hole 61-3 GM-11354 Meta-diabase or meta-andesite at 38'-171' and 250'-327'. Graphitic metasedimentary rock with some pyroclastic rock at 171'-250'. Abundant pyrite at 182' in graphitic metasedimentary rock.
6	180°	60°	437'	130'	Paudash Mines Ltd. (1961) Hole 61-4 GM-11354 Interlayered arenite and argillite to 407'. Graphitic metasedimentary rock at 407'-437'. An acid dike at 391'-392'. Arenite contains salt-sized fragments of quartz and argillaceous material. Argillite contains a few areas with arenaceous material and widely disseminated pyrite. Layers in argillite are at 45° to the core axis.
7	195°	60°	514'	167'	Paudash Mines Ltd. (1961) Hole 61-5 GM-11354 Graphitic metasedimentary rock at 167'-186', 301'-308', and 349'-351'. Massive homogeneous argillite at 186'-202'. Agglomerate with tuffaceous and graphitic sections at 202'-301' and 308'-344'. Magnetic meta-diabase at 351'-514'. Pyrrhotite in places at 301'-308'. Layers in graphitic metasedimentary rock at 45° to core axis.
8	180°	60°	359'	145'	Paudash Mines Ltd. (1961) Hole 61-6 GM-11354 Graphitic metasedimentary rock at 145'-246', 270'-280', and 300'-328'. Argillite at 246'-270'; arenite at 280'-300' and 328'-359'. Acidic dikes at 213' and 341'. Nodular pyrite at 241'.
9	180°	60°	413'	62'	Paudash Mines Ltd. (1961) Hole 61-7 GM-11354 Amygdaloidal meta-andesite at 62'-169' and 265'-293'. Agglomerate with a few tuffaceous horizons at 169'-265' and 333'-347'. 50% sulfides at 217'-221'. Acid dikes at 230'-235'. Graphitic metasedimentary rock at 293'-370' and 389'-407'. Argillite at 370'-389'. Arenite at 407'-413'. Some pyrite in argillite. Layering in graphitic rock at 60° to core axis.

DIAMOND DRILLING DATA FOR LA PELTRIE (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
10	220°	60°	226'	88'	Paudash Mines Ltd. (1961) Hole 61-8 GM-11354 Intermediate metavolcanic rock (andesite?) at 88'-138'. Graphitic metasedimentary rock at 138'-193'. Massive, slightly magnetic, feldspathic dike (meta-diabase?) at 193'-226'. Layering in graphitic metasedimentary rock is at 45° to the core axis.
11	240°	45°	532'	68'	Paudash Mines Ltd. (1961) Hole 61-9 GM-11354 Mostly metamorphosed volcanic rock (andesite and pyroclastics) with some pyrrhotite, pyrite, and graphite in places. Graphitic sedimentary rock at 196'-204' with nodular pyrite. Pink aplitic dike at 247'-332' and 214'-217'. Layering in graphitic rock is at 35° to the core axis.
12	180°	60°	268'	6'	Paudash Mines Ltd. (1961) Hole 61-10 GM-11354 Massive, fine- to medium-grained, slightly magnetic metadiabase at 6'-96' and 98'-131'. Layered graphitic sedimentary rock in one place containing pyrrhotite layers at 96'-98', 131'-145', 155'-162' and 190'-196'. Argillite or pyroclastic at 145'-155'. Pyroclastic rock with tuffaceous and graphitic sections at 162'-190' and 196'-226'. 10% pyrrhotite at 162'-190'. Intermixed volcanic rocks with disseminated sulfides at 226'-268'. Layering in graphitic rock is 40° to core axis.

13	180°	60°	307'	181'	Paudash Mines Ltd. (1961) Hole 66-11 GM-11354 Massive and slightly magnetic metadiabase at 181'-232' and 271'-307'. Pyroclastic rock with graphitic sections and some rusty sections at 232'-271'. Layering in graphitic rock is at 30° to the core axis.
14	0°	50°	277'	79'	Kesagami Syndicate (1959) Vixen Group Hole 4-1 GM-18183 At 79'-194' light to dark green, fine- to medium-grained, massive, hard, silicified, sedimentary rock with a few stringers of pyrrhotite and/or pyrite and a few specks of chalcopyrite. Subhedral pink garnet at 169.7' and deeper. Magnetite iron-formation at 169.7'-170.4'. Sedimentary rock shows layering at 55° to core axis. From 194.4' quartzite in places argillaceous or graphitic, with stringers and layers up to several feet thick of 10%-80% pyrrhotite and pyrite commonly associated with graphitic horizons. Drill core was left on the southwest shore of Combaluzier lake, in Massicotte township.
15	0°	50°	286'	31.3'	Kesagami Syndicate (1959) Fox Group Hole 5-1 GM-18183 A sedimentary sequence of quartzite, conglomerate, breccia and some graywacke. 5%-100% massive pyrrhotite and/or pyrite 6"-16' thick occurs in most places over a 92' sequence of core. Conglomerate-breccia contains small pink anhedral garnet in the matrix; is somewhat chloritized; and contains fragments up to 3"-4". Quartzite is fine grained and gray, and contains small amounts of pink garnet. Graywacke is fine grained, gray to gray-green and slightly chloritized, and contains small amounts of garnet. No graphite in the core. Core is on the southwest shore of Combaluzier lake, in Massicotte township.

DIAMOND DRILLING DATA FOR LA PELTRIE (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
16	0°	50°	367'	74'	Kesagami Syndicate (1959) Fox Group Hole 6A-1 18183 An interlayered sequence of argillite, and quartzite except for rhyolitic to andesitic lava at 82'-211.8' and quartz diorite at 303'-367'. 5%-20% pyrrhotite and pyrite in a sequence of about 100' of core in sedimentary sequence of about 100' of core in sedimentary rock. Small amounts of sphalerite and chalcopyrite in a few places. Massive pyrrhotite replacement with some quartz and pyrite and a little chalcopyrite and sphalerite over 1.1' of core. Small amounts to 5% disseminated pyrite in lava and less than 2% in quartz diotite. Layers of graphite occur in places in the sedimentary rock and contain the heaviest concentration of sulfide minerals. Several assays showed traces of gold, silver, copper and nickel and 3.2% zinc in one place. The core is on the southwest shore of Combaluzier lake, in Massicotte township.
17	0°	50°	245.5'	23'	Kesagami Syndicate (1959) Fox Group Hole 6B-1 GM-18183 Clastic sedimentary rock consisting predominantly of quartzite with some argillite, graywacke, and biotite-rich phases. Biotite present in some of quartzite. Quartzite is bedded and grades into graywacke in a number of places. Layers of graphite at 199.4'-204.2', and small amounts in a few other places. Up to about 25% pyrite and pyrrhotite (usually 5%-10%) in most of 4 sections each 15'-25' long. A few specks of chalcopyrite and sphalerite. Bedding and schistosity at 25°-45° to core axis. The core is on the southwest shore of Combaluzier lake, in Massicotte township.

18	196°	50°	248'	17'	Kesagami Syndicate (1959) Wolf Group Hole 60-1 GM-18183 A sedimentary sequence of quartzite and some graywacke cut in a number of places by quite thin to thick intrusions of granodiorite. Up to 10% pyrite and pyrrhotite over some of two sections of core 70' and 30' long. 50% pyrite in sedimentary rock at 94.8'-95.4'. Sulfides occur in lenses, seams, and as disseminations. A few grains of chalcopyrite and sphalerite in places. Chalcopyrite noted in one place along contact of sedimentary rock and granodiorite. Some pyrite in granodiorite. Small amounts of graphite, and some pink anhedral garnet, in a few places in sedimentary rock. Bedding at 30°-45° to core axis.
19	0°	51°	430'	92'	Kesagami Syndicate (1959) Muskrat Group Hole 95-1 GM-18183 A sedimentary sequence of quartzite-graywacke with some pebble conglomerate. Bedding in places is good. Carbonaceous bands make up 10%-70% of the core. Up to 20% (usually 1%-5%) pyrite and/or pyrrhotite occur throughout the core. Sulfides are disseminated or along the bedding. A few specks of chalcopyrite and sphalerite. Nodular pyrite with graphite in a few places. Stringers of ankerite in places. The bedding is at 35° to the core axis. The core was left on the south shore of Turgeon river almost due north of the drill-hole.
					MASSICOTTE TOWNSHIP
1	20°	50°	443'	36'	Kesagami Syndicate (Moose Group) (1959) Hole 8-1 GM-18074 A gradational sedimentary assemblage of arkose, quartzite, quartzite breccia, and iron-bearing rocks. Much of the quartzite and quartzite breccia contains pyrrhotite, magnetite, and chlorite and in some places lenses of garnet, and grades into banded iron-bearing rocks.

DIAMOND DRILLING DATA FOR MASSICOTTE (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
1	20°	50°	443'	36'	Kesagami Syndicate (Moose Group) GM-18074 The banded iron-bearing rocks consist of up to 60% massive pyrrhotite and magnetite; in places a little pyrite; and the remainder pink garnet in a chloritized groundmass. The arkose is gray with subrounded to angular fragments 1/2-4 mm. of quartz and feldspar, and shows bedding at 50°-60° to the core axis. Layers in arkose are dark to very light gray. The quartzite is very fine grained and light gray to black. The quartzite breccia consists of fragments up to 2" of quartzite in a chloritized groundmass with some garnet. Six assays of 5 sections each from 190'-260', containing 40%-75% pyrrhotite, 5%-20% pyrite, some magnetite, nil to 0.005 oz./ton of gold, 0.02-0.05 oz./ton silver, 0.04%-0.08% copper and no zinc or nickel. Three assays of 5' sections showed 10% iron, 0.01%-0.10% copper, 0.1%-0.3% manganese, 0.01%-0.1% titanium and 0.01% nickel. Massive sulfide minerals noted in 12 different sections of 178.9' of core length at 185.6'-434'. The core for hole 8-1 was left on the northeast shore of Bruel lake in Enjalran township.
2	180°	50°	50'	0'	Noranda Exploration Co. Ltd. (1965) Hole BM-3 GM-16615 Conglomerate consisting of light-colored, sub-rounded fragments in a green matrix. The fragments and matrix are fine grained. The fragments consist mostly of quartz and calcite and are homogeneous in composition but vary from a few mm. in diameter to more than 2 cm. Some dark fragments at 48'. 10%-20% pyrrhotite in grains and streaks throughout the core. Most of the pyrrhotite appears to replace some of the fragments. Basic dikes at 4', 6' and 16'.

3		vertical	25'	0'	Noranda Exploration Co. Ltd. (1965) Hole BM-4 GM-16615 Conglomerate except for gabbro at 10'-13'. Conglomerate contains white to light gray fragments in a green matrix. Fragments are subrounded, up to 3 cm. in diameter, and probably quartzitic. About 15% pyrrhotite throughout the conglomerate. Pyrrhotite appears to replace the fragments.
4		vertical	50'	0'	Noranda Exploration Co. Ltd. (1965) Hole BM-5 GM-16615 Conglomerate with finer fragments than in holes BM-3 and 4. The matrix is dark gray and hard. 10%-15% pyrrhotite in streaks, stringers and fine disseminations throughout the core. Color of the fragments varies from dark gray to light brown at 25'-50'. Magnetite in places.
					MONTGOLFIER TOWNSHIP
1	0°	45° to 40°	765'	51'	Miro Mines Ltd. (1964) Hole MM-1 (GM-16119) Acidic fragmental volcanic rock with cherty interlayers and a 1' fracture with some chalcopyrite at 194'-348'. Metadiorite at 348'-374.9'. Highly altered fracture zone with considerable pyrrhotite and pyrite at 374.9'-392'. Massive sulfide zone of 90% pyrite and 10% pyrrhotite in wall-rock at 392'-415'. Volcanic rock at 415'-430.4'. Graphitic sedimentary rock with minor pyrite- and pyrrhotite-filled fractures at 430.4'-470.2'. Pyroclastic rock with a little pyrrhotite and finely disseminated pyrite and with feldspar porphyry dikes at 470.2'-730.4'. Granite (quartz defficient) resembling gray feldspar porphyry at 730.4'-765'. Assays showed nil to .20% zinc, .03 oz./ton silver, no gold, .01% copper, and no nickel. The location of the drill-holes is shown on geophysical map GM-16118.

DIAMOND DRILLING DATA FOR MONTGOLFIER (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
2	180°	45° to 36°	556'	36'	Miro Mines Ltd. (1964) Hole MM-2 (GM-16119) Pyroclastic sequence of cherty acidic fragmental rocks and intermediate tuff with cherty interbeds. Some gabbro. Up to 15% sulfides (2:1 pyrrhotite: pyrite) in pyroclastic rocks at 110'-313.5' and 404'-435.5'. Stringers and blebs of pyrrhotite in other parts of core in pyroclastic rocks. A few chalcopyrite-filled fractures. A few grains of sphalerite. Assays showed a trace of zinc, no nickel or gold, and up to .03 oz./ton silver.
3	180°	62°	877'	30'	Miro Mines Ltd. (1964) Hole MM-3 (GM-16119) Mostly pyroclastic and sedimentary rocks. Some black, graphitic sedimentary rock; some diorite; and a few granite and feldspar porphyry dikes. Some rocks are granitized. Minor amounts of pyrrhotite and pyrite with a few stringers of sphalerite in a few places in both pyroclastic and sedimentary rocks. Sulfide zones with 40%-75% pyrrhotite and pyrite at 278.5'-317', 376'-386', 487.5'-490', and 593.7'-594.7'. Disseminated pyrite in some diorite and acid dikes. Banding is 20°-30° to core axis. Assays showed up to .12% zinc, .03% copper, and no nickel.
4	135°	45° to 42°	379'	54'	Miro Mines Ltd. (1964) Hole MM-4 GM-16119 Mostly acidic pyroclastic rock at 54'-156.8', 177'-191.5', and 193.5'-273.5'. Somewhat carbonaceous black shaly sedimentary rock at 162.5'-173.5'. Massive pyrrhotite in bedded carbonaceous sedimentary rock at 156.8'-162.5'.

					Miro Mines Ltd. (1964) Hole MM-4 (GM-16119) A little pyrrhotite and pyrite in places in pyroclastic rock. Streaks and stringers of sphalerite at 173.5'-177'. Diorite at 273.5'-325' and 117.5'-121.7'. Pegmatite dike at 192'-193.5'. Rocks somewhat granitized toward 379'.
5	160°	45°	300'	44'	Miro Mines Ltd. (1964) Hole MM-5 (GM-16119) Diorite at 44'-150.2'. Gray, acidic, pyroclastic rock which may be porphyritic, fragmental, or cherty, with up to 30% pyrrhotite and pyrite at 150.2'-233.5'. Pyroclastic rock at 239'-282' with pyrrhotite in places. Unmineralized feldspar porphyry at 233.5'-239' and 282'-292'. Complex of unmineralized pyroclastic rock and feldspar porphyry at 292'-300'.
6	180°	60°	138'	5'	Selco Exploration Co. Ltd. (1958) Harricana Baker Hole 2 GM-7965 - (Filed under Bapst township) Fine-grained, layered quartzite and some interlayered, green, talcose rock. Up to 10% magnetite in a few places, either in layers or as disseminated grains. 5%-15% pyrrhotite occurs erratically throughout the first 100' of core, the last 38' of core containing almost no sulfides. Pyrrhotite is generally parallel to the foliation, but in a few places it occurs in cracks almost normal to the dip. Almost massive pyrrhotite occurs in 2 places over 3' and .5' of core; also an average of 45% over 5' of core. Pyrite is generally present in small amounts and cuts pyrrhotite veins.
7	255°	75°	70'	70'	Selco Exploration Co. Ltd. (1958) Harricana Charlie Hole 1 GM-7965 - (Filed under Bapst township). Hole abandoned in overburden.

DIAMOND DRILLING DATA FOR MONTGOLFIER (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
8	21°	45°	507'	113'	Selco Exploration Co. Ltd. (1959) Charlie Group - Adam River Hole 1 GM-18242 Altered volcanic (?) at 113'-147.5'. At 147.5'-507' sedimentary rock, in part argillite, commonly sheared and brecciated and, in places, containing graphite and up to 2% pyrite. In a few places 2%-5% fine pyrite is in disseminations, layers, or along shear planes. 70% pyrite at 266'-303' and 311.2'-323'. 5% pyrite at 391.2'-400'. Layers at 45° to core axis.
9	270°	45°	566'	140'	Selco Exploration Co. Ltd. (1959) Charlie Group - Adam River Hole 2 GM-18242 At 140'-202.8' brecciated zone with introduced fine sugary quartz (60%), some disseminated magnetite, pyrrhotite, and pyrite. Sheared talcose sedimentary rock at 202.8'-205'. Layered and in many places carbonaceous argillite interlayered with graywacke at 205'-505'. 70% pyrrhotite and pyrite at 205.1'-214.4'. Up to 1% pyrite in blebs and stringers in places at 214'-243.3'. 5%-25% coarse spheroids of pyrite and some narrow layers of graphite in carbonaceous argillite at 243.3'-249.6'. Massive pyrite replacement at 249.6'-261.1'. 3%-8% pyrrhotite and pyrite at 261.7'-266.4' and 339'-358'. Altered iron-formation with 20% magnetite, 5% pyrrhotite, and 5% pyrite at 505.6'-566'.
10	0°	45°	354'	8'	Kennco Exploration (Canada) Ltd. (1959) Turgeon Area - East Claim Group Hole T-2 (not in government file) Silicified siltstone with 20%-80% pyrrhotite and pyrite locally as fine disseminations or in seams. (Sulfide ratio is 80%-90% pyrrhotite and 10%-20% pyrite). 5' of gabbro. 4' of andesite with 2% pyrrhotite.

11	0°	45°	345'	46'	Kennco Exploration (Canada) Ltd. (1959) Turgeon Area - East Claim Group Hole T-3 (not in government file) The upper part of the core consists of andesite with a little pyrrhotite and small amounts of chalcopyrite and sphalerite in blotches, along fractures, and in zones. Graphitic siltstone with up to 10% pyrrhotite in stringers, lenses, and blotches in lower part of core. 2" of 5% sphalerite, a few crystals of chalcopyrite, and 8" of 5% sphalerite in quartz-carbonate stringer in graphitic siltstone.
12	315°	45°	349'	51'	Kennco Exploration (Canada) Ltd. (1959) Turgeon Area - East Claim Group Hole T-4 GM-9576 Greenish, light to dark gray, silicified, medium-grained graywacke with rounded to angular fragments of mudstone; siltstone interlayered in 2 places with 10' and 5' of mudstone containing 1/4" layers of graywacke. Scattered patches of pyrrhotite (2%), finely disseminated pyrite (5%), and a few grains of chalcopyrite in graywacke. A sulfide zone at 277'-322' consisting of 10% pyrrhotite in 1/4"-1/2" blotches in mudstone at 277"-293'; 60%-90% pyrrhotite and 1% pyrite and chalcopyrite, and 18" of carbonate stringers in sulfides with galena and sphalerite on each side of the stringers at 293'-317'; and 30%-50% pyrrhotite, 5% pyrite, and a few grains of chalcopyrite in mudstone at 317'-322'.
13	0°	45°	352'	36'	Kennco Exploration (Canada) Ltd. (1959) Turgeon Area - East Claim Group Hole T-5 GM-9576 Medium- to coarse-grained, dark green gabbro consisting of 60% amphibole and chlorite and 40% altered feldspar; cut by about 10 pink carbonate and quartz-carbonate veins 1/8"-2" thick with 10%-50% chalcopyrite in six of the quartz carbonate veins. 30% chalcopyrite and 70% pyrite in a narrow sulfide vein.

DIAMOND DRILLING DATA FOR MONTGOLFIER (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
14	180°	45°	156'	18'	Kennco Exploration (Canada) Ltd. (1959) Turgeon Area - East Claim Group Hole T-6 GM-9576 Medium-grained, spotted diorite of 50% feldspar and 50% hornblende and biotite, in places with some magnetite and inclusions of volcanic rock; dark green, fine-grained volcanic rock with 5%-15% magnetite and in places 5% pyrite or pyrrhotite and less than 1% chalcopyrite; and gabbro. Massive sulfide zones at 19'-22', 113'-117.4', 120'-126.4', and 131'-135' of 25%-60% pyrrhotite, 0%-15% pyrite, 0%-15% magnetite, and quartz.
15	225°	45°	435'	62'	Kennco Exploration (Canada) Ltd. (1959) Turgeon Area - East Claim Group Hole T-7 GM-9576 Clay at 0'-56', boulders at 56'-62'. Gabbro with 2%-3% magnetite and a few specks of pyrrhotite and pyrite; basalt, andesite, volcanic breccia, and silicified siltstone at 62'-435'. At 138'-270', up to 10% pyrite and in a few places up to 1% chalcopyrite in all rock types but gabbro. 10% magnetite and 25% pyrrhotite in andesite at 300'-330'. Massive sulfides (90% pyrrhotite and 10% pyrite) and a few layers of magnetite at 330'-355' and 404'-425' in volcanic rock.
16	180°	45°	247'	33'	Kennco Exploration (Canada) Ltd. (1959) Turgeon Area - East Claim Group Hole T-8 GM-9576 Medium- to coarse-grained, pale green to light gray gabbro in places with 10%-20% biotite. 10%-20% magnetite in 3 places 4', 2.5' and 3.3' thick. 3%-10% pyrrhotite and pyrite and usually less than .5% chalcopyrite as narrow stringers and disseminated grains in a number of narrow sections throughout the core.

17	225°	45°	245'	54'	Kennco Exploration (Canada) Ltd. (1959) Turgeon Area - East Claim Group Hole T-9 GM-9576 Dark gray, massive, weakly magnetic siltstone and conglomerate interlayered with graphitic schist. 5%-10% pyrrhotite and pyrite throughout core as specks, blebs, patches, and stringers. Specks of sphalerite and chalcopyrite at 155.6'. Quartz pebbles 1/16"-1/8" and a few mudstone fragments 1/8"-1/4" in the conglomerate.
18	180°	45°	758'	61'	Kennco Exploration (Canada) Ltd. (1959) Turgeon Area - East Claim Group Hole T-10 Interlayered quartzite and gabbro with some andesite and graphite schist. Gabbro contains less than 1% pyrite and pyrrhotite. Garnet occurs in places in the andesite. 5%-20% pyrrhotite and pyrite in stringers, patches, fractures, and massive sections and 5%-10% magnetite as stringers and layers in quartzite. Quartzite is light gray and massive or layered.
19	180°	45°	400'	79'	Kennco Exploration (Canada) Ltd. (1959) Turgeon Area - East Claim Group Hole T-11 GM-9576 Dark gray layered to massive mudstone; pale yellowish gray to light gray massive siltstone; massive and light gray quartzite and light gray to dark gray conglomerate. 1% pyrrhotite and/or pyrite in blebs or disseminated crystals throughout most of core. Massive sulfides of 90% pyrrhotite and 10% pyrite at 180'-186.8' and 199'-208'. 40%-50% pyrrhotite and pyrite with some magnetite at 213.5'-327'. 10%-15% magnetite at 273'-277'. 15% pyrrhotite at 341.5'-350.6'.
20	315°	55° to 48°	641'	44'	Ansil Mines Ltd. (1959) Hole 1 GM-9556 Quartz diorite with inclusions of iron-formation at 44'-132'. Graywacke interlayered with magnetite iron-formation and cut by granitic and basic intrusive rocks at 132'-588.4'. Andesitic lava at 588.4'-641'. A composite assay from 145' to 485' gives 22.94% iron, .08% phosphorus, and .21% titanium. Much of the core for all drill-holes is stored on the east shore of Harricana river just south of the first big rapids in the north part of Montgolfier township.

DIAMOND DRILLING DATA FOR MONTGOLFIER (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
21	315°	55° to 47°	572'	45'	Ansil Mines Ltd. (1959) Hole 2 GM-9556 Pink granite, diorite and andesitic lava at 45'-333'. Diorite with partly digested graywacke and iron-formation and interlayers of iron-formation at 333'-526'. Diorite, chlorite schist, and a little graywacke at 526'-572'.
22	315°	55° to 48°	820'	34'	Ansil Mines Ltd. (1959) Hole 3 GM-9556 Interlayered graywacke and iron-formation with a little micaceous quartzite, cut by diorite and granite. In places, thickly bedded graywacke with a few narrow bands of magnetite. Composite percentage of iron at 230'-427' is 24.23% and at 620'-765' it is 27.7%. Intermediate lava with quartz stringers at 468.5'-474'.
23	315°	45° to 39°	531'	38'	Ansil Mines Ltd. (1959) Hole 4 GM-9556 Interlayered graywacke and iron-formation and a little micaceous quartzite. In places, the graywacke contains narrow layers of iron-formation and in other places the iron-formation contains narrow layers of graywacke. Altered lava at 274.6'-288'. Composite percentage of iron at 38'-110' is 26.4%, and at 195'-350' is 30.4%.
24	315°	50° to 42°	538'	52'	Ansil Mines Ltd. (1959) Hole 5 GM-9556 Quartz diorite with a little granite at 52'-87.4'. Interlayered graywacke and magnetite iron-formation and a little mica schist over remainder of core. Composite % of iron at 341'-366' is 25.85% and at 393'-411' is 31.24%.

25	315°	50° to 44°	520'	54'	Ansil Mines Ltd. (1959) Hole 6 GM-9556 Quartz diorite with inclusions of iron-formation and greenstone at 54'-300.8'. A little pyrite and chalcopyrite in the greenstone. Interlayered graywacke and iron-formation with two narrow zones of andesitic lava at 300.8'-520'. Composite % of iron at 300'-325' is 34.23%, at 342'-368' is 29.04%, and at 375'-398' is 30.34%.
26	315°	55° to 49°	531'	54'	Ansil Mines Ltd. (1959) Hole 7 GM-9556 Interlayered graywacke and iron-formation with 5 narrow sections of andesitic lava and one section of arkose. Granite at 61'-62.5'. Graywacke contains iron-formation and iron-formation contains thin graywacke. Composite % of iron at 295'-380' is 22.88% and at 445'-502' is 27.84%.
27	180°	46° to 14°	1115'	143'	Atlin Ruffner Mines Ltd. (1957) Hole A-1 (GM-5684-B) Clay overburden. Magnetite iron-formation consisting of barren argillite layers several inches thick interlayered with layers containing some magnetite. Layers of jasper up to 1/2 inch thick in places. Minor green tuff and green chloritic diorite. Magnetite occurs in most of the core. Thirty-two assays each over 5' and 10' of core totalling 185' gave 10.35%-33.06% iron. Bedding is at 45° to core axis at 60'. Magnetite of similar grade occurs throughout all 37 cores of Atlin Ruffner Mines in Montgolfier and Orvilliers township. Location of all drill-holes for Atlin Ruffner Mines Ltd. is shown on the map (GM-6046).
28	180°	45° to 28°	1000'	134'	Atlin Ruffner Mines Ltd. (1957) Hole A-2 (GM-5684-B) Clay overburden. Magnetite argillite interlayered with gray to green argillite without magnetite and a few layers of jasper. A few layers of green to gray tuff or thin lavas. Some green chloritic andesite with magnetite layers. Minor green tuff without magnetite. Magnetite occurs throughout much of core but varies in quantity every few inches to every foot. Bedding at 154' is at 45° to the core axis.

DIAMOND DRILLING DATA FOR MONTGOLFIER (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
29	180°	49° to 16°	1335'	130'	Atlin Ruffner Mines Ltd. (1957) Hole A-3 (GM-5684-B) Clay overburden. Interlayered thinly bedded argillite and magnetic argillite. Argillite is green, fine grained, lacks magnetite, and, in places, contains scattered cubes of pyrite. Magnetic argillite is black and fine grained and contains thin layers of jasper up to 1/2". Minor green chloritic andesite and tuff, both containing magnetite. Bedding at 198' is at 45° to the core axis.
30	180°	48° to 18°	1413'	133'	Atlin Ruffner Mines Ltd. (1957) Hole A-4 (GM-5684-B) Clay to 110'. Sand and gravel at 110'-134'. According to logging by Dr. Dugas of the Department of Natural Resources, the core consists of gray sericite schist, pyroxene chlorite schist, green chlorite schist (argillite) resembling a volcanic rock, green schist, and arkose with a few thin layers of iron-formation in places. Bedded iron-formation with layers of jasper occurs in several thick sections. Diorite and lamprophyre dikes, and disseminated cubical pyrite, occur in places. Bedding at 223.5' is at 30° to the core axis. Core as logged by Atlin Ruffner uses the terms tuff, argillite, and magnetic argillite throughout. (Thus whether some of the rock should be called metamorphosed tuff or metamorphosed sedimentary rocks is not agreed upon).
31	225°	45°	1046'	174'	Atlin Ruffner Mines Ltd. (1957) Hole A-5 (GM-5684-B) Clay at 0'-125'. Sand and gravel at 125'-174'. Interlayered sections of thin-bedded green argillite with a few magnetite-rich layers and thin-bedded magnetic argillite with layers 1/4"-1" with and without magnetite. Some black arkose. Magnetite occurs throughout much of the core.

32	180°	45° to 24°	1328'	120'	Atlin Ruffner Mines Ltd. (1957) Hole A-6 (GM-5684-B) Magnetic argillite consisting of layers with and without magnetite interlayered with some green tuff. Layers of jasper 1/2" wide. Magnetite occurs throughout core. A few thin sections of pyroxene rock. Bedding is at 45° to the core axis at 123'.
33	180°	45° to 19°	937'	121'	Atlin Ruffner Mines Ltd. (1957) Hole A-7 (GM-5684-B) Andesite or tuff with disseminated pyrite at 121'-198'. Tuff with layers of magnetite, magnetic argillite, and magnetic slate at 192'-937'. Layering at 45° to core axis at 198'.
34	180°	45° to 17°	963'	85'	Atlin Ruffner Mines Ltd. (1957) Hole A-8 (GM-5684-B) Interlayered argillite, magnetitic argillite, and tuff with layers of magnetite.
35	180°	45° to 19°	1166'	156'	Atlin Ruffner Mines Ltd. (1957) Hole A-9 (GM-5684-B) Magnetic argillite interlayered with some green tuff and a few layers of jasper. Disseminated pyrite in places. Layering at 45° to the core axis at 156'.
36	180°	45° to 29°	990'	155'	Atlin Ruffner Mines Ltd. (1957) Hole A-10 (GM-5684-B) Magnetic argillite interlayered with some green tuff. Barren and magnetite-rich layers in both rock types. Layers at 35° rc the core axis at 155'.
37	180°	45° to 28°	927'	24'	Atlin Ruffner Mines Ltd. (1957) Hole A-11 (GM-5684-B) Magnetic argillite interlayered with some tuff.
38	180°	45° to 35°	639'	154'	Atlin Ruffner Mines Ltd. (1957) Hole A-12 (GM-5684-B) Mostly magnetic argillite with some tuff. Magnetite throughout the core. Quartz stringers in the tuff. Layers at 45° to the core axis at 154'.

DIAMOND DRILLING DATA FOR MONTGOLFIER (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
39	180°	45° to 32°	1071'	172'	Atlin Ruffner Mines Ltd. (1957) Hole A-13 (GM-5684-B) Magnetic argillite interlayered with green tuff containing some magnetite. Layering is at 45°-50° to the core axis at 172'.
40	180°	45°	775'	92'	Atlin Ruffner Mines Ltd. (1957) Hole A-14 (GM-5684-B) Interlayered magnetic argillite and green tuff. Widely scattered layers of magnetite in tuff. Layering is at 45° to the core axis at 140'.
41	180°	45° to 29°	764'	167'	Atlin Ruffner Mines Ltd. (1957) Hole A-15 (GM-5684-B) Magnetic argillite, in places with layers containing no magnetite, and some green tuff. A few layers of jasper. Layering is at 50° to the core axis at 200'.
42	180°	45°	713'	30'	Atlin Ruffner Mines Ltd. (1957) Hole A-16 (GM-5684-B) Yellow clay at 0'-30'. Dark gray, coarse-grained andesite at 30'-35'. Magnetic argillite interlayered with thin layers of barren andesite or tuff. A little graywacke. A few black graphitic layers; 2" with pyrite. Layering is at 50°-60° to the core axis at 100'.
43	180°	45°	752'	40'	Atlin Ruffner Mines Ltd. (1957) Hole A-19 (GM-5684-B) Magnetic argillite and some tuff. Green granular andesite at 46'-51'. Magnetite throughout the core. Layering is at 45° to the core axis at 46'.

44	180°	45° to 42°	440'	16'	Atlin Ruffner Mines Ltd. (1957) Hole A-21 (GM-5684-B) Magnetic argillite and a little greenish to gray graywacke. Feldspar porphyry dike at 28'-71'. Cubical pyrite in a few places in graywacke. Up to 50% pyrite in 2 sections of 1' each, and 3%-5% in irregular layers in graywacke at 335'-440'. Layering is at 55° to core axis at 68'.
45	0°	45° to 43°	437'	47'	Atlin Ruffner Mines Ltd. (1957) Hole A-22 (GM-5684-B) Mostly magnetic argillite and a little tuff. Graywacke and greenstone without magnetite at 399'-437'. Layering at 30° to the core axis at 124'.
46	180°	45° to 32°	797'	13'	Atlin Ruffner Mines Ltd. (1957) Hole A-23 (GM-5684-B) Graywacke, in places arkosic, magnetic argillite and slaty magnetic argillite. Layering is at 55°-60° to core axis at 156'.
47	180°	45° to 30°	724'	14'	Atlin Ruffner Ltd. (1957) Hole A-28 (GM-5684-B) Magnetic argillite and magnetic graywacke. A little greenstone. Feldspar porphyry at 505'-510'. Layering is 55°-65° to the core axis at 106'.
48	180°	45° to 37°	800'	90'	Atlin Ruffner Mines Ltd. (1957) Hole A-29 (GM-5684-B) Magnetic argillite. A little graywacke and greenstone.
49	180°	45° to 29°	800'	50'	Atlin Ruffner Mines Ltd. (1957) Hole A-31 (GM-5684-B) Magnetic argillite and graywacke. Some greenstone. Layering is at 60° to the core axis at 159'.

DIAMOND DRILLING DATA FOR MONTGOLFIER (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
50	180°	45° to 34°	892'	20'	Atlin Ruffner Mines Ltd. (1957) Hole A-32 (GM-5684-B) Magnetic argillite. Some graywacke and greenstone. Disseminated cubical pyrite in places. Graywacke is gray to granular green, is not layered, and contains disseminated pyrite and magnetite in places. Layering is at 70° to the core axis at 94'.
51	180°	45° to 33°	843'	10'	Atlin Ruffner Mines Ltd. (1957) Hole A-33 (GM-5684-B) Magnetic argillite and greenstone. Some graywacke. Diorite at 10'-32'. Disseminated pyrite in places. Layering is at 70° to core axis at 92'.
52	180°	45° to 35°	599'	11'	Atlin Ruffner Mines Ltd. (1957) Hole A-34 (GM-5684-B) Magnetic argillite and magnetic graywacke. Some greenstone. Disseminated pyrite in places. Layering is at 50° to the core axis at 250'.
53	180°	45° to 23°	930'	26'	Atlin Ruffner Mines Ltd. (1957) Hole A-35 (GM-5684-B) Magnetic argillite, graywacke, and greenstone, all containing magnetite. Limy-looking quartzite at 242'-253'. Disseminated cubical pyrite in places. Layering at 50° to core axis at 100'.
54	180°	45° to 33°	638'	110'	Atlin Ruffner Mines Ltd. (1957) Hole A-36 (GM-5684-B) Clay at 0'-60'. Clay and boulders at 60'-100'. Magnetic argillite, greenstone and graywacke. Magnetite throughout most of core. Layering is at 65° to the core axis at 126'.

55	180°	45° to 35°	650'	154'	Atlin Ruffner Mines Ltd. (1957) Hole A-37 (GM-5684-B) Magnetic argillite, graywacke, and greenstone. Magnetite throughout the core. Layering at 65° to the core axis at 137'.
56					Atlin Ruffner Mines Ltd. (195?) Hole S-1 Log of hole not in government files. Location of hole shown on map (GM-6046) of Atlin Ruffner Mines Ltd.
					ORVILLIERS TOWNSHIP
1	180°	45° to 37°	553'	64'	Atlin Ruffner Mines Ltd. (1957) Hole A-17 (GM-5684-B) Black fine-grained magnetic argillite having layers with and without magnetite and a little dull gray finely granular graywacke. Magnetite occurs throughout most of core. Layering is at 50° to the core axis. The location of all drill-holes for Atlin Ruffner Mines is shown on the map (GM-6046).
2	180°	45° to 37°	929'	41'	Atlin Ruffner Mines Ltd. (1957) Hole A-18 (GM-5684-B) Magnetic argillite, a little tuff, and minor gray-green granular graywacke.
3	0°	45° to 34°	784'	50'	Atlin Ruffner Mines Ltd. (1957) Hole A-20 (GM-5684-B) Magnetic argillite and a little gray granular graywacke. Magnetite throughout most of the core. Layering is at 40° to the core axis at 60'.
4	180°	45° to 40°	879'	80'	Atlin Ruffner Mines Ltd. (1957) Hole A-24 (GM-5684-B) Layered iron-formation in argillite. A 5' and a 10' section of schistose diorite. A biotite lamprophyre dike. Layering is at 55° to the core axis at 68'.

DIAMOND DRILLING DATA FOR ORVILLIERS (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
5	0°	45° to 40°	408'	41'	Atlin Ruffner Mines Ltd. (1957) Hole A-25 (GM-5684-B) Magnetic argillite. Layering at 25°-35° to the core axis at 145'.
6	180°	45° to 38°	801'	45'	Atlin Ruffner Mines Ltd. (1957) Hole A-26 (GM-5684-B) Magnetic argillite and magnetic graywacke. Some greenstone with a few layers of magnetite. Disseminated pyrite in places. Layering is 45° to the core axis at 70'.
7	180°	45° to 37°	636'	17'	Atlin Ruffner Mines Ltd. (1957) Hole A-27 (GM-5684-B) Magnetic argillite and a little graywacke. Greenstone with magnetite layers and disseminated pyrite at 490'-636'. Layering is at 55° to the core axis at 41'.
8	180°	45° to 33°	872'	31'	Atlin Ruffner Mines Ltd. (1957) Hole A-30 (GM-5684-B) Dioritic greenstone with layers of magnetite and disseminated pyrite 31'-123'. Magnetic argillite and graywacke at 123'-872'. Layering is at 60° to the core axis at 150'.
9	15°	45°	348'	55'	Kennco Exploration (Canada) Ltd. (1959) Turgeon Area, East Claim Group Hole T-1 (not in government file) Silicified siltstone with 1%-5% pyrite and in a few places less than 1% chalcopyrite and sphalerite. 25% pyrite over zones 6.4' and 27.3' thick. 50% pyrite over a zone 1.8' thick.

					PUISEAUX TOWNSHIP
1	0°	50° to 41°	830'	80'	Lambton Copper Mines Ltd. (1959) Hole No. 5 GM-7649-B Predominantly thickly bedded greenish gray graywacke with 2 sections 15' and 6.3' thick of lean magnetite iron-formation interlayered with some andesitic lava. Three thin intrusions of gray granite and quartz diorite. Layering in graywacke is 30° to the core axis.
2	180°	50°	800'	52'	Lambton Copper Mines Ltd. (1959) Hole No. 6 GM-7649-B Thickly bedded graywacke with two horizons of layered magnetite iron-formation. Two sections of gray granite 67' and 23' thick. Bands of iron-formation are 1/4"-1" thick and unevenly distributed.
3	180°	50°	316'	8'	Lambton Copper Mines Ltd. (1959) Hole No. 7 GM-7649-B Dark gray graywacke with arkosic gradations and in places containing feldspar fragments giving a porphyritic appearance, followed by banded cherts grading down into graywacke.
					RAYMOND TOWNSHIP
1	180°	45°	425'	108'	Lambton Copper Mines Ltd. (1958) Hole 1 GM-7649-B Banded magnetite iron-formation at 108'-244.5' cut in 4 places by thin basic intrusions 1'-3' thick. Silty slate at 244.5'-425' cut by a thin acidic intrusion. Bedding is 45°-50° to the core axis. Assays of iron-formation are as follows:

From	To	Width	%Fe	%Ti	%P	%S	%SiO_2
108'	118'	10'	19.22%	0.17%	0.134%	0.010%	53.20%
118'	128'	10'	17.53%	0.18%	0.112%	0.005%	54.08%
128'	138'	10'	13.94%	0.29%	0.106%	0.024%	55.10%

Most of the drill core for holes 1 through 7 was left on the property.

DIAMOND DRILLING DATA FOR RAYMOND (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
2	0°	50°	589'	110'	Lambton Copper Mines Ltd. (1958) Hole 2 GM-7649-B Basic lava (?) and an acidic intrusion 10' thick at 110'-134'. Banded iron-formation cut in 2 places by basic intrusion 1'-3' thick at 134'-589'. Bedding is 60° to the core axis. Assays of the iron-formation are as follows:
3	180°	45° to 27°	793'	107'	Lambton Copper Mines Ltd. (1958) Hole 3 GM-7649-B Green andesitic lava with dark green to green gray, very fine-grained, thinly bedded, siliceous sedimentary rock (graywacke) at 107'-198'. Bedding in graywacke is 55° to core axis. Thin layers of fine-grained magnetite, in places widely spaced, interlayered in graywacke. Cubical pyrite in quantities less than 1% occurs in a few places in the iron-formation. Feldspar porphyry, diorite, quartz diorite, trap rock, and amphibolite intrusions occur in places. Graywacke shows less pronounced layering than iron-formation.

From	To	Width	%Fe	%SiO_2
240'	250'	10'	27.29%	46.52%
250'	260'	10'	28.98%	45.36%
305'	325'	20'	24.90%	46.20%
340'	350'	10'	22.71%	51.08%
380'	390'	10'	25.60%	50.60%
410'	420'	10'	25.80%	49.40%
450'	460'	10'	25.90%	47.88%
500'	510'	10'	31.57%	45.20%
540'	550'	10'	35.76%	40.04%
550'	560'	10'	26.19%	46.58%
560'	570'	10'	27.49%	46.20%

4	180°	45°	176'	176'	Lambton Copper Mines Ltd. (1958) Hole 4a GM-7649-B Hole abandoned in overburden.
5	180°	50°	126'	126'	Lambton Copper Mines Ltd. (1958) Hole 4b GM-7649-B Hole abandoned in overburden.
6	31°	45°	575'	118'	Selco Exploration Co. Ltd. (1960) India Group Hole 1 GM-18075 At 118'-241' and 570'-575' medium- to coarse-grained amphibolite (metagabbro) consisting of feldspar (30%-40%), amphibole (60%-70%) and, in places, accessory amounts of mica. Pyrite and pyrrhotite and, in a few places, small amounts of chalcopyrite occur as thin seams or on slip surfaces. At 241'-541' and 549.5'-563' fine-grained, laminated, gray, quartzo-feldspathic metasedimentary rock with small amounts of pyrrhotite and pyrite here and there. Laminae within sedimentary rock are 1/8"-1" thick and at 30° to the core. A number of layers up to 3.5' thick ranging between graphitic sedimentary rock to almost pure graphite contain small amounts of pyrite and pyrrhotite. Quite a few thin quartz and quartz-calcite veins. At 541'-544.5' medium to coarse feldspar porphyry containing phenocrysts of white feldspar in a fine- to medium-grained matrix of quartz, feldspar and mica.
7	210°	69°	492'	110'	Selco Exploration Co. Ltd. (1960) India Group Hole 2 GM-18075 Overburden of clay and sand. Mostly fine-grained finely laminated, gray to dark gray, metasedimentary rock interlayered with thin layers of feldspathic igneous rock and feldspar porphyry and thicker layers of amphibolite, talcose basic igneous rocks, and andesite. Metasedimentary rock is fine grained, finely laminated,gray to dark gray, similar to rock in hole India I, and contains a number of quartz-calcite veins parallel to the bedding. Small amounts of disseminated pyrite and pyrrhotite occur in feldspathic igneous rocks. Within the metasedimentary rock, graphite and sulfide minerals were noted only below 376' and commonly occur together. Pyrite and pyrrhotite occur in

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
					places below 376' as disseminated grains (up to 10%) or as thin veins parallel, and normal, to the bedding and accompanied by minor amounts of chalcopyrite.
					RÉCHER TOWNSHIP
1	357°	45°	407'	55'	Selco Exploration Co. Ltd. (1959) Harricana Zebra Hole 4 GM-8929-B (Filed under Enjalran township). Interlayered lava and tuff except for black carbonaceous chert at 235'-271.5'. 1%-3% pyrrhotite and pyrite and a few blebs of chalcopyrite in places in lava. Tuff contains no sulfides. 10% pyrite as coarse spheroids, fine layers, and stringers at 235'-266', and 8% pyrrhotite at 266'-271.5' all in black carbonaceous chert. A 1/2" vein of pyrrhotite with 5% chalcopyrite in lava at 278.8'. 10% magnetite in chloritized lava at 271.5' to 274.5'. Tuff is fine to coarse grained; finely layered in places; consists of feldspar, biotite and hornblende; and shows some dark cherty sections.
2	0°	45°	405'	28'	Selco Exploration Co. Ltd. (1959) Harricana Zebra Hole 5 GM-8929-B (Filed under Enjalran township). At 28'-86.5' argillite, graywacke, and some arkose and carbonaceous chert with local layers 1'-3' thick of 10%-60% pyrrhotite and/or pyrite. Traces of chalcopyrite in places and 1% chalcopyrite in 3 sulfide zones each about a foot thick. Pyrrhotite parallels the foliation. Chalcopyrite is along cross fractures. Altered lava with sections of dark gray chert at 86.5'-405'. In places up to 15% pyrrhotite and/or pyrite, with traces of chalcopyrite in blebs in lava. Chalcopyrite occurs along cross-fractures. 10%-15% pyrrhotite and pyrite as layers, fine disseminations, spheroids, and eyes. Traces of chalcopyrite in dark gray chert.

SAINTE-HÉLÈNE TOWNSHIP

1	0°	45° to 47°	308'	8'	Noranda Exploration Co. (1965) Mount Ste-Hélène Group Hole MS-1 GM-16551 (filed under La Gauchetière township in government files). Gray to greenish gray, siliceous, hard, massive, intermediate metavolcanic rock (dacite?) with a few interlayers of graphitic schist at 8'-223'. 2%-50% pyrite and pyrrhotite over sections totaling about 140' of core at 8'-223'. Sulfides occur as streaks, disseminations and stringers and, in a few sections, there is massive pyrite. In a few places pyrite is in rounded grains. Grayish green, fine-grained, hard, basic metavolcanic at 223'-298' with scattered grains and streaks of pyrrhotite amounting to less than 2%. Medium-grained diabase at 298'-304'. Basic metavolcanic rock at 304'-308'.
2	180°	50°	124'	91'	Noranda Exploration Co. Ltd. (Brivan Minerals Ltd.) (1958) Hole 1 GM-7810-B Massive, medium-grained gabbro with 15% and 6% disseminated pyrite and less than 0.5% chalcopyrite, respectively, at 101.7'-102.0' and 113.3'-114.3'. Hole stopped due to casing trouble.
3	30°	50°	488'	4'	Noranda Exploration Co. Ltd. (Brivan Minerals Ltd.) (1958) Hole 2 GM-7810-B Massive, medium-grained gabbro with magnetite as disseminations and in stringers, and with some basalt. Hematite schist at 280'-287.4'. Blebs of chalcopyrite alone or with pyrite in quartz veins in a few places. 15% mineralization in gabbro at 301'-322'. Schistosity at 75° to core axis.
4	130°	50°	494'	22'	Noranda Exploration Co. Ltd. (Brivan Minerals Ltd.) (1958) Hole 3 GM-7810-B Mostly massive, medium-grained gabbro with a little disseminated magnetite, pyrite, and pyrrhotite and in a few places a few blebs of chalcopyrite. Some tuff, basalt and greenstone interlayered with the gabbro. 15%-20% sulfides in stringers and blebs including 1%-2% chalcopyrite in greenstone at 224'-225' and 12%-15% sulfides in gabbro at 225'-314.6', 2%-10% sulfides and magnetite at 314.6'-494'.

DIAMOND DRILLING DATA FOR SAINTE-HÉLÈNE (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
5	180°	50°	488'	96'	Noranda Exploration Co. Ltd. (Brivan Minerals Ltd.) (1958) Hole 4 (GM-7810-B) Mostly gabbro; some basalt and tuff. At 96'-315', 1%-2% pyrrhotite and magnetite over much of the core; less than 1% chalcopyrite in a few places; and a little disseminated sphalerite in two places. At 315'-429', 5%-15% pyrrhotite and magnetite over much of the core and less than 1% chalcopyrite in one place. Two assays samples of 5' each at 169.6'-179.6' showed up to 0.15% zinc and 0.25%-0.27% copper.
6	180°	50°	410'	70'	Noranda Exploration Co. Ltd. (Brivan Minerals Ltd.) (1958) Hole 5 (GM-7810-B) Basalt, gabbro, diabase, and some syenite and granite. Up to 20% magnetite and pyrrhotite in places throughout the core. Up to 1.5% chalcopyrite in three short sections at 331.5'-410'. An assay of 2' of core showed no zinc and 0.95% copper.
7		90°	502'	94'	Noranda Exploration Co. Ltd. (1959) Kitchigama-Jenney Group Hole KJ-1 GM-10193-B Graphitic metasedimentary rock with nodular and disseminated pyrite in layers up to 1" thick at 94'-105'. Carbonatized metavolcanic rock (probably pillowed lava) with up to 20% very fine-grained, disseminated pyrite and pyrrhotite over much of the core. The amount of pyrrhotite increases with depth at 323'-385'. Two assays each over 5' of core showed 0.17% copper, 0.009%-0.13% nickel, and a trace of gold and silver.

8		90°	475'	75'	Noranda Exploration Co. Ltd. (1959) Kitchigama-Jenney Group Hole KJ-2 GM-10193-B Interlayered, graphitic metasedimentary rock, basic dikes (gabbro) and some carbonate rock. Pyrite as nodules, layers, and scattered grains in graphitic and carbonate rocks. Scattered pyrite and a little chalcopyrite in basic dikes. Ten assays over 10' of core each showed 0.02%-0.116% copper, a trace of gold, 0.04-0.14 oz./ton silver, and no nickel.
9		90°	533'	128'	Noranda Exploration Co. Ltd. (1960) Kitchigama-Jenney Group Hole KJ-3 GM-10193-B Interlayered graphitic sedimentary rock and feldspathic acidic dikes. About 5% nodular pyrite in graphitic rock. Dike rock contains pyrrhotite and pyrite and in one place less than 0.5% chalcopyrite.
10	0°	50°	700'	51'	Noranda Exploration Co. Ltd. (1960) Kitchigama-Jenney Group Hole KJ-4 GM-10193-B Mostly metadiabase with up to 10% magnetite. Some lamprophyre, diorite and intermediate pillow lava. In places, rocks are brecciated and cemented with quartz.
11	180°	45°	399'	30'	Noranda Exploration Co. Ltd. (1960) Kitchigama-Jenney Group Hole KJ-5 GM-10193-B Metagabbro, metadiabase and metavolcanic rock at 30'-153'. Brecciated tuffite (?) with acidic fragments and 5%-15% pyrite, pyrrhotite, and chalcopyrite in the matrix at 153'-299'. Sulfides are zoned in places in the tuffite. Graphite occurs in one place in the tuffite. Lamprophyre dike with a trace of pyrite and chalcopyrite at 235'-241' and 299'-399'. Banding in tuffite is 30°-40° to core normal.
12	180°	50°	162'	30'	Noranda Exploration Co. Ltd. (1960) Kitchigama-Jenney Group Hole KJ-6 GM-10193-B Fine-grained metadiabase with a little magnetite, lamprophyre, and intermediate pillow lava with scattered pyrite along pillow contacts.

DIAMOND DRILLING DATA FOR SAINTE-HÉLÈNE (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
13	0°	50°	413'	52'	Noranda Exploration Co.Ltd. (1960) Kitchigama-Jenney Group Hole KJ-7 GM-10193-B Mostly fine-grained metadiabase. A few lamprophyre dikes.
14	0°	50°	303'	100'	Noranda Exploration Co. Ltd. (1960) Kitchigama-Jenney Group Hole KJ-8 GM-10193-B Pyroclastics(?): abundant fragments of quartz and clay material.
15	0°	60°	455'	16'	Noranda Exploration Co. Ltd. (1960) Kitchigama-Jenney Group Hole KJ-9 GM-10193-B Diorite to diabase with some chlorite, leucoxene, and variable amounts of pink feldspar. Magnetite in places at 229'-260'. Visible chalcopyrite and small grains of sulfides at 320'-380'.
16	180°	50°	500'	88'	Noranda Exploration Co. Ltd. (1962) Kitchigama-Jenney Group Hole KJ-10 GM-12505 Graphitic metasedimentary rock (agglomerate?) with abundant angular fragments and 10% nodular pyrite or vuggy pyrite at 88'-147' and 198'-203'. Intermediate pillowed lava and a few thin dikes of syenite or rhyolite over most core. A trace of sulfides in the inter-pillow sections in places. Abundant, very fine-grained pyrrhotite and traces of chalcopyrite in places at 445'-500'. Bands in graphite at 10° to core normal. Pillow contacts at 30°-50° to core normal.

17	180°	45°	497'	12'	Noranda Exploration Co. Ltd. (1962) Kitchigama-Jenney Group Hole KJ-11 GM-12505 Intermediate lava commonly pillowed; a few lamprophyre dikes; and a dike of metadiabase or metadiorite. Graphitic metasedimentary rocks with abundant nodular and lenticular pyrite at 204'-210', 295'-305', and 319'-327'. Banding in graphitic metasedimentary rocks is at 10°-20° to the core normal.
18	0°	45°	551'	54'	Noranda Exploration Co. Ltd. (1962) Kitchigama-Jenney Group Hole KJ-12 GM-12505 Relatively fresh diorite with granitic texture, consisting of amphibole, biotite, feldspar, scattered chloritic patches and scattered patches of pyrite at 54'-386' and 513'-581'. Breccia, probably rhyolitic and maybe tuffaceous with some sulfides in places and abundant sulfides at 463'-473'. Lightly chloritized and relatively unbrecciated metarhyolite at 489'-513'.
19	0°	50°	299'	62'	Noranda Exploration Co. Ltd. (1960) Kitchigama Project Brivan II Group Hole B-II-1 (GM-10165-C) Mostly highly altered, intermediate metavolcanic rock with 3 thin dikes of biotite lamprophyre and diorite.
20	180°	50°	500'	70'	Noranda Exploration Co. Ltd. (1960) Kitchigama Project Brivan II Group Hole B-II-2 (GM-10165-C) Mostly metadiabase to metagabbro with a few dikes of dioritic lamprophyric, and aplitic composition. Schistosity in metadiabase is 60° to core normal.
21	0°	50°	118'	40'	Noranda Exploration Co. Ltd. (1960) Kitchigama Project Brivan II Group Hole B-II-3 (GM-10165-C) Mostly acidic metavolcanic rock with fresh diabase and a lamprophyre dike with amphibole and mica.
22	135°	45°	589'	53'	Noranda Exploration Co. Ltd. (1962) Brivan II Group Hole B-II-4 (GM-11855) Mostly diotite with abundant biotite, minor quartz, and traces of chalcopyrite. Some metadiabase, metavolcanic rock, and hybrid rock consisting of metavolcanic rock and diorite or granite. Shistosity or primary foliation in diorite is at 55° to the core normal.

DIAMOND DRILLING DATA FOR SAINTE-HÉLÈNE (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
23	315°	45°	580'	63'	Noranda Exploration Co. Ltd. (1962) Brivan II Group Hole B-II-5 (GM-11855) Mostly metadiabase and metadiorite. Some hybrid rock (acidic metavolcanic rock injected by diorite). Scattered chalcopyrite veinlets in metadiorite in a few places at 448'-478'.
24	315°	45°	492'	64'	Noranda Exploration Co. Ltd. (1962) Brivan II Group Hole B-II-6 (GM-11855) Mostly metavolcanic rock which is relatively acidic and in some sections resembles metasedimentary rock and meta-diorite to metadiabase. Granitic rock or possibly diorite at 114'-258'. Three lamprophyre dikes containing amphibole, feldspar and biotite. Carbonate-sericite schist (probably sheared metadiorite to metadiabase) at 435'-492'. Shear-ing and possible fault zone at 35° to core normal. Some sections of metadiabase to metadiorite are highly magnetic.
25	135°	45°	455'	80'	Noranda Exploration Co. Ltd. (1962) Brivan II Group Hole B-II-7 (GM-12785) Metadiabase and some polka-dot gabbro. A few lampro-phyre dikes. Magnetite in several places in meta-diabase. Scattered pyrite in a few places. A few grains of chalco-pyrite. Schistosity is at 45° to core normal.
26	180°	50°	500'	48'	Noranda Exploration Co. Ltd. (1960) Kitchigama Project Maingot Group Hole M-1 GM-10165-D Diabase with up to 10% magnetite interlayered with inter-mediate metavolcanic rock. Traces of pyrite and minor magnetite in the metavolcanic rock.

27	180°	50°	599'	150'	Noranda Exploration Co. Ltd. (1960) Kitchigama Project Maingot Group Hole M-2 GM-10165-D Mostly acidic metavolcanic rock (probably meta-rhyolite) cut in several places by dikes of diorite and diorite porphyry.
28	180°	70°	500'	83'	Noranda Exploration Co. Ltd. (1960) Kitchigama Project Maingot Group Hole M-3 GM-10165-D Breccia with acidic-appearing fragments at 83'-100'. Fine-grained diorite porphyry with abundant phenocrysts of feldspar and aplite at 100'-152'. Acidic metavolcanic rock with some epidote at 152'-500'.
29	0°	45°	55'	10'	Noranda Exploration Co. Ltd. (1965) Mount Ste-Hélène Hole MS-4 GM-17240 Diabase at 10'-23' with a speck of chalcopyrite. Gray, fine-grained, massive, intermediate metavolcanic rock with about 2% pyrite in streaks, grains and stringers. Minor chalcopyrite at 23'-55'.
30	0°	45° to 41°	479'	26'	Noranda Exploration Co. Ltd. (1965) Mount Ste-Hélène Hole MS-4a GM-17240 Mostly greenish (in places purplish and resembles a rhyolite) fine-grained, hard, siliceous intermediate metavolcanic (dacite and andesite); several unmineralized gabbro dikes, and 27' of pinkish gray rhyolite(?) (may-be agglomerate or breccia). A few scattered grains and streaks of pyrite and pyrrhotite and in places a few specks of chalcopyrite in the volcanic rock to 275'. At 275'-435' sulfide content increases with 12 different sections of from 2' to 22' totalling 60' of core having 5%-20% pyrite and pyrrhotite in grains, stringers, streaks, and splashes; in a few places, specks of chalcopyrite. Highly graphitic sections with 10%-15% sulfides included in above-mentioned sulfide zone at 299'-303' and 378'-382'. Assays showed a trace of gold, a trace to .60% zinc and .04%-.10% copper.

DIAMOND DRILLING DATA FOR SAINTE-HÉLÈNE (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
31	0°	45°	125'	6'	Noranda Exploration Co. Ltd. (1965) Mount Ste-Hélène Hole MS-5 GM-17240 Dark gray, fine-grained, massive, basic metavolcanic with a few grains of pyrite at 6'-38'. Amphibole-feldspar porphyry dike at 38'-64'. Fine-grained dark grayish green metagabbro similar to basic metavolcanic rock with a few scattered streaks of pyrite at 64'-125'. Forced to abandon hole, and started hole MS-5a.
32	0°	45° to 47°	309'	23'	Noranda Exploration Co. Ltd. (1965) Mount Ste. Hélène Hole MS-5a GM-17240 Dark green, fine-grained, hard, massive, basic meta-volcanic rock with streaks of pyrite at 23'-36'. Medium to light gray amphibole-feldspar porphyry dike at 36'-64'. Slightly magnetic dark grayish green, fine- to medium-grained metagabbro resembling in places basic metavolcanic rock and containing about 1% pyrite as streaks and disseminations at 64'-309'. 30% pyrite and minor chalcopyrite in quartz-carbonate at 261.5'-263'.
33	0°	45° to 42°	307'	6'	Noranda Exploration Co. Ltd. (1965) Mount Ste. Hélène Hole MS-6 GM-17240 Gray to pinkish gray, extremely fine-grained, porphyritic meta-rhyolite cut by 5' of pinkish gray acidic rock and 8' of dark gray amphibole-biotite lamprophyre dike. Several sections of the meta-rhyolite are spherulitic and some sections are brecciated with fragments up to 2" long. Quartz phenocrysts occur throughout the rhyolite.
34	0°	45°	122'	122'	Noranda Exploration Co. Ltd. (1965) Mount Ste. Hélène Hole MS-7 GM-17240 Hole abandoned owing to its causing trouble.

35	0°	60° to 54°	407'	135'	Noranda Exploration Co. Ltd. (1965) Mount Ste. Hélène Hole MS-8 GM-17240 At 135'-346' greenish to brownish gray dacite to andesite with a few stringers of disseminated pyrite, stringers of ankerite, and a streak of sphalerite. 4" of graphite with pyrite at 344'. At 346'-407' light to dark gray, hard, siliceous, rhyolitic agglomerate with disseminated pyrite throughout and several short graphitic sections with pyrite. 60% pyrite with some pyrrhotite at 352'-355' and 357'-362.4'. Schistosity is at 35°-45° to the core axis.
36	180°	45°	202'	202'	Selco Exploration Co. Ltd. (1959) Harricana Easy Hole 1 GM-8021-A Sand and boulders. Hole abandoned in overburden.
37	180°	52°	376'	183'	Selco Exploration Co. Ltd. (1959) Harricana Easy Hole 2 GM-18822 Tuff, in places graphitic, black, and/or carbonaceous and andesite - except for gabbro at 321'-371'. Gabbro contains 2%-5% magnetite and small amounts of disseminated pyrite. 1/2%-5% pyrrhotite and/or pyrite and in places chalcopyrite as blebs, disseminations, stringer-like segregations, and thin films on slip planes. 10%-15% pyrite at 281'-283' and 295'-300'. Graphite occurs as slips and as stringers in the tuff. Pyrite content is often higher in graphitic sections. Banding is at 60° to the core axis.
38	180°	45°	346'	53'	Selco Exploration Co. Ltd. (1959) Harricana Peter Group Hole 1 GM-8021-B At 53'-214', fine-grained, light gray andesite with some areas of slight carbonate alteration and up to 1% pyrite disseminated but with some possible concentrations near dark carbonate veins. Several narrow sections within the andesite of high, dark carbonate content having up to 10% pyrite. At 214'-346' interlayered andesite, black carbonate rock, and graphitic rock with small sections of several inches rich in pyrite. Pyrite occurs in spherical blebs and stringers. The higher pyrite content is within the areas highest in dark carbonate and graphite.

DIAMOND DRILLING DATA FOR SAINTE-HÉLÈNE (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
39	0°	60°	400'	40'	File Lake Explorations Ltd. (1959) Hole FL-1 GM-8761-B Muskeg at 0'-4'. Clay without boulders at 4'-40'. Fine- to medium-grained, green andesite with very little pyrite in calcite seams at 40'-124' and 318'-341'. Massive, medium-grained gabbro with disseminated magnetite throughout, and small amounts of disseminated pyrite and pyrrhotite in places at 124'-318' and 341'-400'. Flow banding in andesite at 15° to core axis at 117'. The drill core was left at the drill-hole. The location of the drill-hole is shown on geophysical map GM-8761-A.
40	270°	60°	297'	97'	File Lake Explorations Ltd. (1960) Hole 3 GM-8761-B Gray-green siliceous, massive rhyolite with sparse disseminated pyrite and chalcopyrite at 94'-215.5'. Green quartz diorite, with distinct quartz crystals and dark chloritic patches being coarser grained away from the contact. Disseminated cubes of pyrite at 245'-247'. The location of the drill-hole is shown on geophysical map GM-8761-A.
41	0°	52.5° to 38°	492.5'	76'	Three Brothers Mining Exploration Ltd. (1959) Hole TB-1 GM-9989 Muskeg at 0'-4'. Clay with sand and boulders near bedrock, at 4'-76'. Green, medium-grained, massive andesite massive medium-grained diorite with 1% or less disseminated pyrite in places; 10' of fragmental volcanic rock with about 1% disseminated pyrite and pyrrhotite; massive fine grained dacite having some fluorite in seams; (all 4 in descending order). The core was left at the drill-hole.

42	340°	55° to 57°	453'	218'	Westfield Minerals Ltd. (1960) (Estates Projects Ltd.) Hole 1 GM-10519 Gray, carbonatized tuff with irregular quartz-carbonate veinlets. The tops (fine-grained, black material usually brecciated and graphitic) of the beds probably face north and dip about 80° north.
43	180°	50°	526'	216'	Selco Exploration Co. Ltd. (1959) Harricana Fox Hole 1 GM-8021-A Light gray, highly altered greenstone with considerable quartz, carbonate, and talc and some graphite slips at 216'-468'. Sheared, gray, carbonate rock at 468'-526'. Disseminated cubical pyrite in places throughout core. 10%-25% pyrite as streaks and blobs at 389'-445'. Massive pyrite with narrow graphite seams at 445'-447.5'. Streaky aggregates of chalcopyrite up to 1/8" at 289'-293'.
					SUBERCASE TOWNSHIP
1	0°	50°	508'	227'	Newlund Mines Ltd. (1959) Hole N 1 GM-9119 Fine-grained, coarsely banded tuff with many stringers of quartz and carbonate and numerous 1" - 2" bands of carbonaceous material grading into agglomerate at 227'-425'. Granite and tuff intermixed at 425'-469'. Coarse-grained, massive gray to pink granite at 469'-508'. 50% pyrrhotite, some pyrite, and a speck of chalcopyrite in agglomerate at 300'-315'. 6" of graphite at 318'. 50% pyrrhotite and a little chalcopyrite at 425'-440'.
2	0°	50° to 60°	548'	201'	Newlund Mines Ltd. (1959) Hole N 2 GM-9119 Light to dark gray, fairly soft, layered basic tuff and agglomerate at 201'-538'. Granite at 538'-548'. Bedding is at 58° to the core axis at 211'. Up to 2% disseminated pyrite and pyrrhotite and a little chalcopyrite in places in tuff and agglomerate. 25% pyrite and pyrrhotite and minor chalcopyrite at 324'-328.5'. 10%-50% pyrite and pyrrhotite and minor chalcopyrite at 463'-478.4'. Two

DIAMOND DRILLING DATA FOR SUBERCASE (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
					Newlund Mines Ltd. GM-9119 assays showed no gold, up to .06 oz./ton silver, up to .11% copper, up to .05% zinc, and no nickel.
3	0°	55°	500'	185'	Noranda Exploration Co. Ltd. (1960) Kitchigama Project Hole B-1-1 GM-10785-B Very basic gabbro at 185'-310'. Intermediate to basic dike (probably related to fresher diabase) at 310'-356'. Serpentinized peridotite with 15% magnetite at 356'-491'. Basic dike at 491'-500'. The location of this hole is shown on map GM-10785-A, filed under Ste. Hélène township.
4	0°	50°	500'	145'	Noranda Exploration Co. Ltd. (1960) Kitchigama Project Hole G-1 GM-10165-E Highly chloritized metadiabase, in places with up to 10% magnetite, and diorite. Aplite dike at 448'-449' with 10% magnetite.
5	180°	60°	499'	122'	Noranda Exploration Co. Ltd. (1960) Kitchigama Project Hole G-2 GM-10165-E Metavolcanic rock (?) and quartz metadiabase both with quartz eyes and up to 8% magnetite; cut by several acidic dikes.
6	0°	55°	499'	125'	Noranda Exploration Co. Ltd. (1960) Kitchigama Project Hole G-3 GM-10165-E Quartz metadiabase with up to 8% magnetite; 6 carbonatized and altered amphibole-feldspar lamprophyre dikes.

7	45°	60°	405'	237'	Noranda Exploration Co. Ltd. (1960) Kitchigama Project Hole G-4 GM-10165-E Chlorite-carbonate-albite schist, probably a sheared dike or metavolcanic rock. Rock is severely weathered, rusty, and friable at 237'-246'.
8	225°	50°	399'	285'	Noranda Exploration Co. Ltd. (1960) Kitchigama Project Hole G-5 GM-10165-E Chlorite carbonate schist.
9	not known	60°	401'	165'	Noranda Exploration Co. Ltd. (1960) Kitchigama Project Hole G-6 GM-10165-F Metadiabase with 5% magnetite and several thin dikes of rhyolite porphyry (?), lamprophyre, and porphyritic diorite(?). Light schistosity at 50° to the core normal.
10	0°	50°	501'	216'	Noranda Exploration Co. Ltd. (1960) Kitchigama Project Hole G-7 GM-10165-F Metadiabase with 10% magnetite cut by two lamprophyre dikes and one diabase to diorite dike. Quartz vein with pyrite and trace of chalcopyrite at 286'-287'.
11	180°	45°	305'	76'	Noranda Exploration Co. Ltd. (1960) Kitchigama Project Hole G-8 GM-10165-F Metadiabase with scattered pyrite cubes in places and hematite along joints. 4' of gray, fine-grained lamprophyre(?) dike.
12	105°	50°	175'	175'	Grasset Lake Mines Ltd. (1959) Hole 1 GM-8917 Hole abandoned in overburden.
13	105°	67° to 60°	632'	182'	Grasset Lake Mines Ltd. (1959) Hole 2 GM-8917 Banded to silicified tuffs with fairly thick zones of disseminated or massive pyrrhotite and pyrite and specks of chalcopyrite to 324'. Also 4.5' of low-grade, siliceous, banded magnetite with graphite slips. Siliceous rhyolite and interlayered tuff, in places with pyrrhotite, pyrite, and minor chalcopyrite and some layers of andesite at 324'-632'. Layering is at 60° to core axis.

DIAMOND DRILLING DATA FOR SUBERCASE (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
14	105°	57° to 53°	795'	128'	Grasset Lake Mines Ltd. (1959) Hole 3 GM-8917 Fine- to medium-grained gabbro and gabbro pyroxenite at 128'-345'. Gabbro contains up to 12% magnetite and a 3' section of quartz stringers with pyrite, pyrrhotite and some chalcopyrite. Silicified banded tuffs with pyrrhotite, some pyrite and a speck of chalcopyrite at 345'-579.2'. Altered rhyolite porphyry with some tuff at 579.2'-795'. Mineralized zones in tuffs of massive to disseminated pyrite; some pyrrhotite and specks of chalcopyrite at 431.2'-559', 575.7'-579.2', and 644'-652'.8'.
15	105°	57° to 54°	759'	176'	Grasset Lake Mines Ltd. (1959) Hole 4 GM-8917 Fine-grained, silicified gabbro with magnetite, pyrrhotite, pyrite, quartz veinlets, and a little chalcopyrite in quartz at 176'-403.2' and 571.2'-633.9'. Silicified tuff with magnetite and pyrrhotite and minor graphite along seams interlayered with andesite at 410.6'-495.4'. Fine-grained rhyolite porphyry at 495.4'-571.2'. Medium-grained, gray, porphyritic granite(?) at 633.9'-653.8'. Fine-grained basalt(?) at 653.8'-759'. Porphyritic dikes in several places.
16	120°	57° to 50°	572'	211'	Grasset Lake Mines Ltd. (1959) Hole 5 GM-8917 Fine-grained, basic, layered tuff with massive and disseminated pyrite and pyrrhotite in large to small amounts and minor chalcopyrite in much of core. Non-mineralized gabbro at 321'-402' and rhyolite porphyry at 481.4'-523.6' and 539.9'-572'.

17	180°	50° to 45°	502'	28'	Orchan Mines (1959) Kitchigama Group Hole K-1 GM-9009-B Mostly massive, medium-grained, light to medium gray, acidic volcanic rock containing stringers of quartz-carbonate and minor pyrite. A 16' zone of graphite with streaks and stringers of pyrite and marcasite at 143'-159'. Several zones of finely layered tuff. The location of drill-holes K 1 through K 6 is shown on geophysical map GM-9009-A.
18	0°	50°	495'	34'	Orchan Mines (1959) Kitchigama Group Hole K-2 GM-9009-B Mostly fine-grained, dark to light gray, acidic volcanic rock with streaks of red hematite and fine pyrite interlayered with about 100' of tuff carrying pyrite and pyrrhotite in narrow layers. Three graphitic zones (7', 17', 4' thick) with pyrite, marcasite, pyrrhotite and the odd grain of chalcopyrite.
19	180°	45° to 43°	227'	34'	Orchan Mines (1959) Kitchigama Group Hole K-3 GM-9009-B Mostly light to dark gray andesite cut by numerous quartz-carbonate stringers with minor scattered pyrrhotite and chalcopyrite. 42' section of thinly layered, light gray silicified tuff with a little pyrrhotite and chalcopyrite; some graphitic sections; some pillowed lava. Layering is at 70° to core axis.
20	180°	45° to 50°	154'	154'	Orchan Mines (1959) Kitchigama Group Hole K-4 GM-9009-B Hole abandoned in overburden.
21	180°	45° to 47°	189'	26'	Orchan Mines (1959) Kitchigama Group Hole K-5 GM-9009-B Hole reported as drilled down the contact of a diabase dike and tuff. Some gray volcanic rock. Several thin sections of pegmatite. The tuff is fine grained, dark gray and coarsely layered.

DIAMOND DRILLING DATA FOR SUBERCASE (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
22	180°	45°	154'	154'	Orchan Mines (1959) Kitchigama Group Hole K-6 GM-9009-B Hole abandoned in overburden.
23	120°	70°	558'	131'	Nipiron Mines Ltd. (1960) Grasset Lake Group Hole 1 GM-10231-B Clay at 0'-100'. Sand, gravel, and boulders at 100'-131'. Fine-grained, greenish gray andesite and three sections totaling 94.1' of light gray siliceous felsite. A number of small quartz-carbonate stringers. Some sheared and chloritized sections with disseminated pyrite and pyrrhotite; pyrite in fine seams 1/8"-1/4" wide. Two assays showed no gold. Core for holes 1 through 5 is on the north shore of Anderson lake in Subercase township.
24	120°	50° to 48°	358'	72'	Nipiron Mines Ltd. (1960) Grasset Lake Group Hole 2 GM-10231-B Clay at 0'-41'. Sand, gravel, boulders at 41'-72'. Andesite, diorite, quartz porphyry and 3 graphitic zones. Andesite is fine grained and massive and has fine pyrite in several narrow shear zones. Diorite is medium grained, sheared, altered and contorted, and contains disseminated pyrite. Quartz porphyry has blue quartz eyes and a little pyrite. Black, medium hard, graphitic zone well mineralized with pyrite, pyrrhotite and magnetite at 174'-177', 207.5'-211', and 248.5'-256'. A 3' zone of fine-grained, hard, light gray, siliceous rock with some fine pyrite at 256'-259' assayed .025 oz./ton gold. Nine assays each of from 1' to 7.5' of core showed no gold.

25	120°	55°	399'	95'	Nipiron Mines Ltd. (1960) Grasset Lake Group Hole 3 GM-10231-B Clay at 0'-31'. Clay, sand, gravel, and boulders at 31'-95'. Downward from 95' the section is as follows:- 66' of andesite with a little disseminated pyrite; 15.4' of rhyolite with considerable quartz and pyrite; 37' of fine-grained slaty rock with some pyrite; 153' of diorite with magnetite and sparse disseminated pyrite; 18' of brown mica schist with some pyrite; 11' of diorite. Schistosity in mica schist is at 60° to the core axis. Eight assays of rhyolite, diorite and slaty sedimentary rocks showed no gold. Four assays of brown mica schist gave .01-.02 oz./ton gold.
26	120°	60°	341'	68'	Nipiron Mines Ltd. (1960) Grasset Lake Group Hole 4 GM-10231-B Clay at 0'-31'. Clay, sand, gravel, and boulders at 31'-68'. Mostly medium-grained diorite and fine-grained massive andesite both with a little finely disseminated pyrite and quartz carbonate veins. Two zones of graphite 1" and 3" thick. Several narrow zones 2'-6' wide of fine-grained, hard, siliceous rock with a little pyrite; one zone 3' wide just beneath a graphite zone carries massive pyrrhotite and pyrite. Shearing is at 50°-60° to the core axis. Nine assays,each over 2' to 6' core,showed nil to .06 oz./ton gold. One assay in the 3' zone of massive sulfides showed .04% copper, .02% nickel, and .005 oz./ton gold.
					VALRENNES TOWNSHIP
1	45°	45°	401'	102'	Jelex Mines Ltd. (1965) Hole 1 (GM-17069) Porphyritic dacite and diorite dike at 102'-257.5'. Fine-grained, gray arkose (possibly tuffaceous) with many flecks, streaks, and seams of black carbonaceous material parallel to banding at 293.1'-401'. Pyrite and graphite in seams at 257.5'-287.6' (60%-70% pyrite) and at 245'-251.5' (15%-20% pyrite). 25% pyrite at 145.9'-146.8'. Layering is 45° to core axis.

DIAMOND DRILLING DATA FOR VALRENNES (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
2	45°	45°	387'	42'	Jelex Mines Ltd. (1965) Hole 2 GM-17069 Arkose at 42'-205' with numerous 2" graphite seams at 42'-50'; a few sections of graphite schist 2'-7' thick, and 1%-7% pyrite in a few places. Green schist at 205'-227' with a few graphitic sections. Banded, dark green, chlorite-carbonate schist; green massive carbonate rock with sections of brown carbonate; and a little disseminated pyrite at 227'-387'. Some barren quartz veins in a few sections. Schistosity at 35° to core axis.
3	45°	45°	292'	84'	Jelex Mines Ltd. (1965) Hole 3 GM-17069 Tuff(?), graphitic tuff, and fine-grained carbonaceous tuff (slaty in part) with a few sections of from 5% to massive pyrite. 5%-20% pyrite at 84'-108' and 138'-178'. Massive pyrite at 178'-193'. 50% pyrite at 198'-224.5'. A few seams and blotches of pyrite and graphite at 84'-108'. Fine banding in graphitic tuff at 45° to core axis.
4	45°	45°	356'	82'	Jelex Mines Ltd. (1965) Hole 4 (GM-17069) Rhyolite, tuff and agglomerate at 84'-345.3' with graphite schist at 201.8'-213.1'. Gabbro at 345.3'-356'. Altered rhyolite is greenish gray to buff, coarse grained, and contains some pyroclastics. Tuffs are grayish and contain coarse fragments up to 3/8". Agglomerate contains white elongated fragments up to 1½". Layering in tuff is at 40° to the core axis.

5	45°	45°	334'	75'	Jelex Mines Ltd. (1965) Hole 5 (GM-17069) Fine-grained dacite with feldspar phenocrysts and a few seams and blotches of pyrite at 75'-240.5'. Grayish arkose with small flecks and seams of graphite at 240.5'-334'. 5%-10% pyrite at 110'-115'. Core is brecciated and mineralized with 10%-20% pyrite and some graphite seams at 126.5'-240.5'. 75% pyrite at 280'-293'. 90% pyrite at 295'-303' and 324'-334'.
6	325°	45°	48'	0'	Conwest Exploration Co. Ltd. (1958) Hole P.S. 1 GM-6616-B Altered diabase at 0'-5'. Silicified, cherty zone slightly mineralized at 5'-11'; highly mineralized at 11'-42.5' with 65%-95% pyrite, pyrrhotite, and arsenopyrite; and slightly mineralized at 42.5'-48'. Pyrrhotite was the last sulfide deposited. (The location of the hole is shown on geophysical map GM-7766).
7	325°	45°	31'	0'	Conwest Exploration Co. Ltd. (1958) Hole P.S. 2 GM-6616-B Silicified, cherty zone slightly mineralized at 0'-10'; highly mineralized with 75%-80% pyrite, arsenopyrite and a little pyrrhotite at 10'-21'; and slightly mineralized with minor pyrite at 21'-26'. (The location of the drill-hole is shown on geological map GM-7766).
8	308°	45°	445'	10'	Conwest Exploration Co. Ltd. (1960) Hole N1-1 GM-10730 Iron-formation and argillite at 66.9'-127.1' overlying rhyolite and basalt(?). Diorite cuts all rock types in a number of places. Iron-formation has the appearance of an argillite, and magnetite layers are 1"-4" thick with bedding at 70°-80° to core axis. Argillite is graphitic in several places and contains 30% pyrrhotite and 10% pyrite. Some zones of chert in rhyolite. 5%-60% pyrite and 5%-30% pyrrhotite at 233.5'-279.4' in

DIAMOND DRILLING DATA FOR VALRENNES (Cont.) TOWNSHIP

Number of hole on map	Azimuth	Dip	Depth feet	Footage of over-burden	Company; year in which drilling was done; number of drill-hole on Company's log; Department of Natural Resources' file number; summary of Company's drill log.
					Conwest Exploration Co. Ltd. GM-10730 fine-grained, dark green to black basalt(?) with some cherty zones. Assays of this sulfide zone showed a trace of gold and up to .02 oz./ton silver. (The location of the drill-hole is shown on geophysical map GM-10731.)
9	306°	45°	399'	8'	Conwest Exploration Co. Ltd. (1960) Hole N1-2 GM-10730 Fine-grained, light green to gray amygdaloidal and porphyritic andesite at 8'-75.7'. Iron-formation and siliceous argillite at 126.1'-269.5'. Iron-formation contains magnetite in layers up to 6" thick and 5%-15% pyrrhotite and pyrite. Bedding is at 75° to the core axis. A sulfide zone at 212.2'-260' contains 10%-70% pyrite, up to 10% pyrrhotite, and, in a few places, a trace of chalcopyrite. Assays showed a trace of gold, up to 0.02 oz./ton silver, .05%-.10% copper, and a trace of zinc. Cherty rhyolite zone at 286.6'-291.1'. Diorite and gabbro cut the core in 4 places. (The location of the drill-hole is shown on geophysical map GM-10731).

APPENDIX II

LIST OF GEOPHYSICAL SURVEYS WITHIN THE MAP-AREA IN THE FILES OF THE QUEBEC DEPARTMENT OF NATURAL RESOURCES

A list of all geophysical surveys submitted to the Quebec Department of Natural Resources prior to September 1, 1966, and located within the map-area, is given in the following pages. The area covered by each geophysical map is shown on the township index maps following Appendix III. The numbers appearing on each of the township index maps serve to identify the various geophysical maps listed in the accompanying compilation table. There are no geophysical maps for Récher township in the Department's files.

The Mineral Deposits Service of the Quebec Department of Natural Resources would be pleased to receive geophysical maps and reports on any part of the map-area which are not included in this compilation. These maps and reports would then be available to aid any company working in the area in the future.

Geophysical maps showing no topography (lakes, streams, etc.) have been located by claim boundaries such as are given on the claim maps of the Department of Natural Resources; some of such claim boundaries may not coincide exactly with the actual location of the claims.

Some adjoining geophysical maps overlap slightly, but this is disregarded in some cases here in order that the data shown be as clear as possible.

In order to give the maximum amount of information regarding the geophysical data submitted to the Department of Natural Resources, the following symbols have been used in the compilation table listing the surveys:-

(Township) — The use of brackets with the name of a township indicates that the geophysical map in question also covers part of an adjoining township mentioned elsewhere in the table and that the map is filed under this adjoining township in the files of the Department of Natural Resources.

(Township) N.T.S. 32-E — The use of a National Topographic System (N.T.S.) notation indicates that the map in question is filed according to N.T.S. blocks and not according to any particular township. The map or maps usually cover several townships and for this reason are filed under the N.T.S.

(9000) — A bracket around the file number indicates that these data were not available to the public as of September 1, 1966, as the claims were still held by the company. Copies of these documents cannot be made available to the public until the expiry date of the claims.

T — The letter T is used instead of a number in the column entitled "Location on Township Index Map" when the geophysical map covers most of the township.

aEM
aMag. — The small letter "a" before EM or Mag. indicates the survey in question to be an air-borne geophysical survey. Ground geophysical surveys are indicated simply by EM or Mag., depending on whether they refer to electromagnetic or magnetic surveys.

(EM)
(Mag.)
(aEM)
(aMag.) — A bracket around EM, Mag., aEM or aMag., indicates that the location of anomalies only, and not the original survey data, is shown on the map.

<u>EM</u>
<u>Mag.</u>
<u>aEM</u>
<u>aMag.</u> — EM, Mag., aEM, aMag., when underlined, indicate that flight lines only are shown on the maps.

1-NR — The letters NR after the figure in the column entitled "Number of Maps" indicates that no geophysical report was submitted with the maps. In all other cases geophysical reports are available.

Copies of geophysical documents, the file number of which is not within brackets, are available to the public at the following tariff:-

Reports — $0.15 per page

Maps — $1.08 per square foot if the Department of Natural Resources does not have a negative; $0.08 per square foot if the Department of Natural Resources has a negative.

Reproduction of maps for which the Department does not have a negative is done by an independent firm which bills the customers directly.

The name of the township, the file number, the name of the company, and a description of the documents desired (map and/or report) should be sent to:-

Department of Natural Resources,
Mineral Deposits Service,
1620 Boulevard de l'Entente,
Québec 6, P.Q.

LIST OF GEOPHYSICAL SURVEYS IN THE FILES OF THE QUEBEC DEPARTMENT OF NATURAL RESOURCES

TOWNSHIP	FILE NUMBER GM-	LOCATION ON TOWNSHIP INDEX MAP	DATA SUBMITTED BY	DATE OF DOCUMENT	TYPE OF SURVEY	NUMBER OF MAPS	SCALE OF MAPS
(Aloigny)	6341-B	2	Empire Oil & Minerals Inc.	1957	Mag.	1	400'
(Aloigny)	9019	3	Westfield Minerals Ltd.	1959	Mag., EM	1	400'
Aloigny	9267	1	Westfield Minerals Ltd.	1959	EM	1	400'
Aloigny	18918	4	Area Mines Ltd. (now owned by Keevil Mining Group Ltd).	1958	AF Mag.	1	500'
(Bapst)	9727	1	Fab Metal Mines Ltd.	1960	Mag., EM	2	200'
Bapst	9065	2	Ranworth Explorations Ltd.	1959	aMag., aEM	2	1320'
Beschefer	6256-B	1	Anglo Huronian Ltd.	1948	Mag.	2	400'
Brouillan	(16078)	2	Juma Mining & Exploration Ltd.	1964	aEM	3	1320'
Brouillan	16079	3	Juma Mining & Exploration Ltd. Report on airborne survey	1964			
Brouillan	(17163)	4	Juma Mining & Exploration Ltd.	1965	Mag., EM	2	200'
(Brouillan) N.T.S. 32-E	8217	T	Paudash Mines Ltd.	1959	(aEM)	1	2640'
(Brouillan) N.T.S. 32-E	9563	1	Paudash Mines Ltd.	1959	(aEM)	1	2640'
Carheil	10053	1	Davian Exploration Ltd.	1960	EM	2	400'
Carheil	10880	2	Davian Exploration Ltd.	1960	EM	1	400'
Carheil	9375	6	Kesagami Syndicate	1959	aMag., aEM	1	1320'
Carheil	(17746)	5	Mining Corporation of Canada Ltd.	1966	Mag., EM	2	400'
Carheil	15352	7	Noranda Exploration Co. Ltd.	1965	EM	1	200'
(Carheil) N.T.S. 32-E	8217	T	Paudash Mines Ltd.	1959	(aEM)	1	2640'

LIST OF GEOPHYSICAL SURVEYS IN THE FILES OF THE QUEBEC DEPARTMENT OF NATURAL RESOURCES

TOWNSHIP	FILE NUMBER GM-	LOCATION ON TOWNSHIP INDEX MAP	DATA SUBMITTED BY	DATE OF DOCUMENT	TYPE OF SURVEY	NUMBER OF MAPS	SCALE OF MAPS
(Carheil) N.T.S. 32-E	9563	4	Paudash Mines Ltd.	1959	(aEM)	1	2640'
Carheil	9141	3	Prospectors Airways Co. Ltd.	1959	(aEM) (aEM)	1 1	1320' 1000'
Casa-Berardi	4967	3	McIntyre Porcupine Mines Ltd.	1959	Mag.	1	400'
Casa-Berardi	11138	2	Wawagosic Syndicate	1961	Mag., Gravity	1	400'
Casa-Berardi	11139	1	Wawagosic Syndicate	1961	Mag., Gravity	1	400'
Desmazures	(17575)	9	ADA Exploration Ltd.	1966	Mag., EM	1	200'
Desmazures	9041	2	Alcourt Mines Ltd.	1959	Mag., EM	2	200'
Desmazures	8851	3	Americandian Mining & Exploration Ltd.	1959	EM	1	400'
Desmazures	11373-A	4	Chimo Gold Mines Ltd.	1961	Mag., EM	3	200'
(Desmazures)	6248-A	6	East Sullivan Mines Ltd.	1957	aMag., aEM	3	1320'
Desmazures	7911	8	East Sullivan Mines Ltd.	1958	aMag., aEM	3	1320'
Desmazures	8503-A	5	Harrison Minerals Ltd.	1959	Mag., EM	1	200'
Desmazures	17272	10	Kateri Mining Corporation Ltd.	1964	EM	3	400'
Desmazures	8815	1	Noranda Exploration Co. Ltd.	1959	Mag., EM	6	200'
(Desmazures)	(10166)	1	Noranda Exploration Co. Ltd. Sigma Group (filed under Ste-Hélène)	1959	EM	1-NR	200'
Desmazures	9338	7	North Mattagami Mines Ltd.	1959	Mag., EM	14	200'
Dieppe	(6242)	1	Conwest Exploration Co. Ltd.	1957	Mag.	1-NR	200'

(Douay)	(17575)	12	ADA Exploration Ltd.	1966	Mag., EM	1	200'
Douay	(15087)	11	Chimo Gold Mines Ltd.	1964	Mag.	1	400'
Douay	(15920)	11	Chimo Gold Mines Ltd.	1964	EM	1	400'
Douay	6248-A	8	East Sullivan Mines Ltd.	1958	aMag., aEM	3	1320'
Douay	(15850)	13	File Lake Mines Ltd.	1965	Mag., EM	1	400'
(Douay) N.T.S. 32-E	11005	10	B.W. Lang & Participants	1961	aMag.	1	1320'
Douay	8816	7	Noranda Exploration Co. Ltd.	1959	Mag. Mag., EM	1 7	1000' 200'
(Douay)	9338	6	North Mattagami Mines Ltd.	1959	Mag., EM	14	200'
Douay	11784	2	Quebec Mattagami Minerals Ltd.	1961	Mag., EM	4	200'
Douay	12712	3	Quebec Mattagami Minerals Ltd.	1961	Mag., EM Location	7 2	200' 1320'
Douay	12713	1	Quebec Mattagami Minerals Ltd.	1961	Mag., EM Location	3 1	200' 1320'
Douay	12714	4	Quebec Mattagami Minerals Ltd.	1961	Mag., EM Location	4 1	200' 1320'
Douay	12715	5	Quebec Mattagami Minerals Ltd.	1962	Mag., EM Location	16 1	200' 1320'
Douay	13571	9	Quebec Mattagami Minerals Ltd.	1963	(aEM)	1	1320'
Enjalran	9885	2	Conwest Exploration Co. Ltd.	1960	Mag.	1	200'
Enjalran	9210	5	Kesagami Syndicate	1959	(aEM)	1	1320'
(Enjalran)	9375	7	Kesagami Syndicate	1959	aMag., aEM	1	1320'
Enjalran	9547	1	Korich Mining Co. Ltd.	1959	Mag.	2	200'
Enjalran	9553	1	Korich Mining Co. Ltd.	1960	EM	1	400'
Enjalran	15488 16861	6	Noranda Exploration Co. Ltd.	1964	EM	1	200'
Enjalran	16348	8	Noranda Exploration Co. Ltd.	1965	EM	2	200'

TOWNSHIP	FILE NUMBER GM-	LOCATION OF TOWNSHIP INDEX MAP	DATA SUBMITTED BY	DATE OF DOCUMENT	TYPE OF SURVEY	NUMBER OF MAPS	SCALE OF MAPS
Enjalran	16351	9	Noranda Exploration Co. Ltd.	1965	EM	1	200'
Enjalran	16353	10	Noranda Exploration Co. Ltd.	1965	EM	1	200'
Enjalran	16354	11	Noranda Exploration Co. Ltd.	1965	EM	2	200'
(Enjalran)	9141	4	Prospectors Airways Co. Ltd.	1959	(aEM)	1	1320'
Enjalran	10038	3	Turzone Explorations Ltd.	1960	Mag. EM	2 1	200' 400'
Estrades	(17537)	1	Rio Tinto Canadian Exploration Ltd.	1966	Mag., EM Gravity	3	200'
Estrées	11859	1	Conwest Exploration Co. Ltd.	1962	Mag.	1	1000'
Estrées	11860	1	Conwest Exploration Co. Ltd.	1962	Mag., EM	2	200'
Estrées	13170-A	5	Conwest Exploration Co. Ltd.	1962	Mag., EM	1-NR	200'
(Estrées)	4967	8	McIntyre Porcupine Mines Ltd.	1959	Mag.	1	400'
Estrées	11862	6	Newmont Mining Corp. of Canada Ltd.	1962	Mag., EM	2	200'
Estrées	12944	7	Newmont Mining Corp. of Canada Ltd.	1963	EM	1	200'
Estrées	14869	2	Rio Tinto Canadian Exploration Ltd.	1964	Mag., EM Gravity Location Location	10 1 2	200' 2640' 1320'
Estrées	11140	4	Wawagosic Syndicate Ltd.	1960	Mag.	1	400'
Estrées	11225	3	Wawagosic Syndicate Ltd.	1961	Mag., EM Gravity	3	400'
Fénelon	9242	5	Camp Bird Mining Ltd.	1959	aEM aMag., aEM	1 2	1320' 400'
(Fénelon)	8936	2	Consolidated Mining and Smelting Co. Canada Ltd.	1959	EM Location	1 1	400' 2 miles

Fénelon	9343	6	Head of the Lakes Iron Ltd.	1959	aEM aMag., aEM	1 2	1320' 400'
Fénelon	8924	7	Kelly Desmond Mining Corp. Ltd.	1959	aEM aMag., aEM	2 4	1320' 400'
Fénelon	9352	8	Kelly Desmond Mining Corp. Ltd. St. Mary's Explorations Ltd. Head of the Lake Iron Ltd. Neumac Corp. Ltd. Daniel Mining Co. Ltd. Temanda Mines Ltd.	1959	aMag., aEM	3	1320'
(Fénelon)	8818	3	Noranda Exploration Co. Ltd.	1959	Mag., EM Location	30 2	200' 1320'
(Fénelon)	8823	4	Norsyncomaque Mining Co. Ltd.	1959	Mag., EM	2	200'
Fénelon	8926	4	Norsyncomaque Mining Co. Ltd.	1959	aMag., aEM (aMag.) ,(aEM)	2 1	400' 1320'
Fénelon	8831	1	Orchan Mines Ltd. Paul Lake Group	1959	Mag.	5	200'
Fénelon	9269	9	Picton Uranium Mines Ltd.	1959	aMag., aEM (aMag.), (aEM)	2 1	400' 1320'
Fénelon	9225	10	Temanda Mines Ltd.	1959	aMag., aEM (aMag.), (aEM)	2 1	400' 1320'
Gaudet	9754	1	Monpre Mining Co. Ltd.	1959	EM	1	200'
(Gaudet)	9755	1	Monpre Mining Co. Ltd.	1959	(aEM)	1	2640'
(Gaudet) N.T.S. 32-E	8217	4	Paudash Mines Ltd.	1959	aMag.	1-NR	2640'
(Gaudet) N.T.S. 32-E	8217	5	Paudash Mines Ltd.	1959	(aEM)	1	2640'
Gaudet	9796	2	Sogemines Development Co. Ltd.	1959	Mag., EM	2-NR	400'
Grasset	8990	1	Baranouri Minerals Ltd.	1959	Mag., EM	2	400'
Grasset	8461-A	2	Buffadison Gold Mines Ltd.	1958	Mag., EM	2	200'
(Grasset)	(15869)	9	John I Cummings "In Trust"	1964	Mag., EM	1	100'
(Grasset)	9303	5	Jellicoe Mines (1939) Ltd.	1959	EM	1	400'

TOWNSHIP	FILE NUMBER GM-	LOCATION ON TOWNSHIP INDEX MAP	DATA SUBMITTED BY	DATE OF DOCUMENT	TYPE OF SURVEY	NUMBER OF MAPS	SCALE OF MAPS
Grasset	(15633)	8	Mining Corporation of Canada Ltd.	1959	Mag. EM	1 1	400' 200'
(Grasset)	7722	7	M.L. Newlund & O.N. Edwards Claims	1958	aEM	2	2640'
(Grasset)	7808	6	Orchan Mines Ltd.	1958	Mag., EM	2	400'
(Grasset)	9009-A	6	Orchan Mines Ltd.	1959	Mag., EM	4	200'
Grasset	8620-A	4	United New Fortune Mines Ltd.	1959	Mag. EM	1 1	200' 300'
Grasset	8621	3	United New Fortune Mines Ltd.	1959	Mag., EM	2	300'
Joutel	(16826)	44	Acme Gas & Oil Co. Ltd.	1965	Mag., EM	2	200'
Joutel	11374	23	Alcourt Mines Ltd.	1961	Mag., EM	1	200'
Joutel	14496	12	Atlin Ruffner Mines (B.C.) Ltd.	1964	Mag., EM Location	2 1	200' 2640'
Joutel	(9291)	13	Augustus Exploration Ltd.	1959	Mag., EM	1	200'
Joutel	(13591)	14	Augustus Exploration Ltd.	1963	EM	1	200'
Joutel	(15498)	13	Augustus Exploration Ltd.	1961	Mag., (EM)	1	200'
Joutel	(16610)	45	Canadian Lencourt Mines Ltd.	1965	Mag., EM	2	200'
Joutel	(16690)	46	Cheskirk Mines Ltd.	1965	Mag., EM	2	300'
Joutel	(15499)	40	Chesterville Mines Ltd.	1961	EM Location	3 1	200' 1320'
Joutel	(11413)	15	Consolidated Mogul Mines Ltd.	1961	Mag., EM	2	300'
Joutel	(11438)	16	Consolidated Mogul Mines Ltd.	1961	Mag., EM	2	200'
(Joutel)	7862	38	Conwest Exploration Co. Ltd.	1958	aMag., aEM	2	2000'

Joutel	10784	24	Conwest Exploration Co. Ltd.	1960	EM	1	400'
(Joutel)	8868	35	Copperstream Mines Ltd.	1959	Mag., EM	1	400'
(Joutel)	10037	35	Copperstream Mines Ltd.	1959	Mag.	1	400'
(Joutel)	(16387)	55	Delhi Pacific Mines Ltd.	1965	Mag., EM	2	200'
(Joutel)	11786	43	Dillman Claims	1962	Mag.	1	200'
Joutel	11539	17	Dome Exploration Ltd. (Que.)	1961	Mag. EM	3 1	200' 100'
Joutel	12308	36	Dome Exploration (Que.) Ltd.	1962	(aEM)	1	1000'
Joutel	13876	25	Dome Exploration (Que.) Ltd.	1962	Mag., EM	2	400'
Joutel	15772	44	Dome Exploration (Quebec) Ltd.	1962	Mag., EM	2	400'
Joutel	15833	17	Dome Exploration (Quebec) Ltd.	1962	Mag., EM	2	400'
Joutel	(11606)	18	Armand Dumas Claims	1961	Mag.	2	200'
Joutel	(11607)	18	Armand Dumas Claims	1961	EM Location	1 1	200' 300'
Joutel	8501-A	26	East Trinity Mining Corp.	1959	Mag., EM	1	200'
Joutel	(11549)	1	Glenburk Mines Ltd.	1961	Mag., EM	1	300'
Joutel	11028-A	2	Haitian Copper Mining Corp. Ltd.	1959	Mag. Location	2-NR 2-NR	200' 2640'
Joutel	(11264)	20	Iso Mines Ltd.	1961	Mag. Mag.	5 1	200' 400'
Joutel	(11265)	19	Iso Mines Ltd.	1961	Mag., EM	2	200'
Joutel	(15660)	47,48	Juma Mining & Exploration Ltd.	1964	Mag.	3	200'
Joutel	(15661)	48	Juma Mining & Exploration Ltd.	1964	EM	1	200'
Joutel	(17058)	47	Juma Mining & Exploration Ltd.	1965	EM	1	400'
Joutel	(17096)	49	Kaymo Minerals Ltd.	1965	Mag., EM	1	200'
Joutel	(17136)	50	Kernard Holding Co.	1965	EM	1	200'
Joutel	15070	8	Kerr-Addison Mines Ltd.	1964	Mag.	1	400'
Joutel	(17457)	51	Lancer Petroleum Ltd.	1966	Mag., EM	2	400'

TOWNSHIP	FILE NUMBER GM-	LOCATION ON TOWNSHIP INDEX MAP	DATA SUBMITTED BY	DATE OF DOCUMENT	TYPE OF SURVEY	NUMBER OF MAPS	SCALE OF MAPS
(Joutel) N.T.S. 32-E	11005	39	B.W. Lang & Participants	1960	aMag.	2	1320'
Joutel	15664	58	B.W. Lang Claims	1964	(aMag., aEM)	2	1320'
Joutel	(17464)	52	Marimac Mines Ltd.	1965	Mag., EM	2	400'
Joutel	(11355-A)	3	Mining Corporation of Canada Ltd.	1961	Mag., EM	2	400'
Joutel	(11536)	21	Mining Corporation of Canada Ltd.	1961	Mag., EM Location	2 1	200' 400'
Joutel	(14875)	22	Mining Corporation of Canada Ltd.	1964	Mag., EM	2	400'
Joutel	12040-B	4	New Jack Uranium Mines Ltd. Property 3	1962	EM Mag.	1 1	200' 400'
Joutel	(12040-A)	5	New Jack Uranium Mines Ltd. Property 2	1962	Mag. Mag., EM	1 2	400' 400'
Joutel	(16878)	53	North Devon Mines Ltd.	1965	Mag., EM	3	200'
Joutel	13281-A	57	Northern Exploration Co. Ltd.	1963	EM	1	400'
Joutel	9083	27	Prospectors Airways Co. Ltd.	1959	EM	1	400'
Joutel	(9883)	7	Prospectors Airways Co. Ltd.	1960	EM	1	400'
Joutel	(10223)	7	Prospectors Airways Co. Ltd.	1960	Mag.	1	400'
Joutel	10224	28	Prospectors Airways Co. Ltd.	1960	EM	3	400'
Joutel	10225	28	Prospectors Airways Co. Ltd.	1960	Mag.	1	400'
Joutel	10353	27	Prospectors Airways Co. Ltd.	1960	Mag.	1	400'
Joutel	10364	9	Prospectors Airways Co. Ltd.	1960	Mag., EM	1	400'
Joutel	11424	8	Prospectors Airways Co. Ltd.	1960	EM Location	1 1	400' 1000'

Joutel	11611	29	Realm Mining Corp. Ltd.	1961	Mag., EM Mag., EM	2 1	400' 200'
(Joutel)	9839	37	Rio Tinto Canadian Exploration Ltd.	1960	(aEM)	1	2640'
Joutel	10057	30	Rio Tinto Canadian Exploration Ltd.	1960	Mag., EM Gravity	3	200'
Joutel	(17045)	54	Salem Exploration Ltd.	1965	EM	1	200'
Joutel	8754	31	Sentry Petroleums Ltd.	1959	Mag.	1	200'
Joutel	8900	33	Signal Chibougamau Mining Corp.	1959	EM	1	400'
Joutel	8901	32	Signal Chibougamau Mining Corp.	1959	EM	1	400'
Joutel	10384	41	Southwest Potash Corp.	1960	EM	2	200'
Joutel	10385	41	Southwest Potash Corp.	1960	Mag., EM (EM) Location	4 1 1	200' 400' 8 miles
Joutel	10389	42	Southwest Potash Corp.	1960	EM Location	4 1	200' 8 miles
Joutel	10390	42	Southwest Potash Corp.	1960	(Mag.), (EM) Mag., EM aMag.	1 17 1	400' 200' 5280'
Joutel	(11376)	10	Southwest Potash Corp.	1961	EM Location	34 1	100' to 300' 400'
Joutel	13262	11	Span-North Mining Claim	1963	Mag., EM Gravity Location	4 1	200' 4 miles
Joutel	11647	34	Spearhead Explorations Ltd.	1961	Mag., EM	1	200'
(Joutel)	(9449)	6	Tazin Mines Ltd.	1960	Mag., EM	2	400'
Joutel	11365	31	Utopia Gold Mines Ltd.	1961	Mag., EM	1	200'
La Gauchetière	8934	6	Ansil Mines Ltd.	1958	EM	3	200'
La Gauchetière	9032	7	Canadian Northwest Mines & Oils Ltd.	1959	Mag., EM	3	400'

TOWNSHIP	FILE NUMBER GM-	LOCATION ON TOWNSHIP INDEX MAP	DATA SUBMITTED BY	DATE OF DOCUMENT	TYPE OF SURVEY	NUMBER OF MAPS	SCALE OF MAPS
La Gauchetière	8669	8	Canadore Mining & Dev. Corp.	1959	Mag.	1	200'
La Gauchetière	9001	9	Consolidated Bellekeno Mines Ltd.	1959	Mag., EM	2	400'
La Gauchetière	7843	10	Conwest Exploration Co. Ltd.	1958	Mag., EM	2	200'
La Gauchetière	8606	11	Conwest Exploration Co. Ltd.	1958	EM	1	200'
La Gauchetière	8463	12	Daering Explorers Corp. Ltd.	1959	EM	5	300'
La Gauchetière	8471	13	D'Eldona Gold Mines Ltd.	1959	EM	2	200'
La Gauchetière	8804-A	14	Franksin Minerals Ltd.	1958	Mag.	1	400'
La Gauchetière	8804-B	14	Franksin Minerals Ltd.	1959	Mag.	1	300'
La Gauchetière	8773	15	Iso Uranium Mines Ltd.	1959	Mag., EM	4	200'
La Gauchetière	8824	16	Jahala Lake Mines Ltd.	1958	EM	1	400'
La Gauchetière	9084	17	Jellicoe Mines (1939) Ltd.	1959	Mag., EM	1	400'
La Gauchetière	9303	18	Jellicoe Mines (1939) Ltd.	1959	EM	1	400'
La Gauchetière	8753-A	19	Jilbie Mining Co. Ltd.	1959	EM	1	200'
La Gauchetière	8753-B	19	Jilbie Mining Co. Ltd.	1959	EM	1	200'
(La Gauchetière)	8923	29	Kelly Desmond Mining Corp.Ltd.	1959	EM	2	400'
La Gauchetière	8821	20	Lawson, Leach & Kitchen Claims	1959	Mag.	1	400'
La Gauchetière	8848	21	Lencourt Gold Mines Ltd.	1959	Mag., EM	1	200'
La Gauchetière	8830	32	New West Amulet Mines Ltd.	1959	EM	1	1320'
La Gauchetière	8772	22	Newlund Mines Ltd.	1959	Mag., EM Mag.	12 1	200' 1000'
(La Gauchetière)	8814	2	Noranda Exploration Co. Ltd.	1959	Mag., EM Mag.	4 1	200' 1000'

(La Gauchetière)	8815	5	Noranda Exploration Co. Ltd.	1959	Mag., EM	6	200'
(La Gauchetière)	(9165)	1	Noranda Exploration Co. Ltd.	1959	Mag.	4	200'
(La Gauchetière)	(10166)	2	Noranda Exploration Co. Ltd. Maingot Group	1959	EM	1-NR	200'
(La Gauchetière)	(10166)	1	Noranda Exploration Co. Ltd. Brivan Group (East sheet)	1959	EM	2-NR	200'
(La Gauchetière)	(10166)	28	Noranda Exploration Co. Ltd. Timmins Group (filed under Ste-Hélène	1959	EM	1-NR	200'
(La Gauchetière)	(11849)	1	Noranda Exploration Co. Ltd.	1961	Mag., EM Location	4-NR 1	200' 2640'
(La Gauchetière)	(11319)	28	Noranda Exploration Co. Ltd. (filed under Ste-Hélène)	1961	Mag., EM	2	200'
(La Gauchetière)	(13613)	4	Noranda Exploration Co. Ltd.	1963	Mag., EM	2	200'
(La Gauchetière)	(15908)	1	Noranda Exploration Co. Ltd.	1965	EM	1	200'
La Gauchetière	16238	33	Noranda Exploration Co. Ltd.	1965	EM	2	200'
La Gauchetière	16441	15	Noranda Exploration Co. Ltd.	1965	EM	2	200'
La Gauchetière	7982	23	Norgold Mines Ltd.	1959	Mag., EM	1	2000'
La Gauchetière	9347-A	24	Northcal Oils Ltd.	1959	EM	1	400'
La Gauchetière	8781	25	Quebec Chibougamau Goldfields Ltd.	1959	Mag., EM	1	200'
La Gauchetière	8843	3	Lorne K. Smith Claims	1959	(aEM)	1	1000'
La Gauchetière	9000-A	26	Southern Union Oils Ltd.	1958	EM	1	400'
La Gauchetière	8756	31	St. Mary's Exploration Co. Ltd.	1959	aEM	1 1	400' 1320'
La Gauchetière	13986	30	St. Mary's Exploration Co. Ltd.	1959	Mag., EM	1-NR	200'
La Gauchetière	8465	27	Three Brothers Mining Exploration Ltd.	1959	EM	2	300'
La Gauchetière	8866	28	N.A. Timmins (1938) Ltd.	1958	EM	1-NR	400'

TOWNSHIP	FILE NUMBER GM-	LOCATION ON TOWNSHIP INDEX MAP	DATA SUBMITTED BY	DATE OF DOCUMENT	TYPE OF SURVEY	NUMBER OF MAPS	SCALE OF MAPS
Lanoullier	11047	1	Americana Trading Co. Ltd.	1960	aMag., (aEM)	1	2640'
Lanoullier	9755	2	Monpre Mining Co. Ltd.	1959	(aEM	2	2640'
Lanoullier	16349	5,4	Noranda Exploration Co. Ltd.	1965	EM	1	400'
(Lanoullier) N.T.S. 32-E	8217	3	Paudash Mines Ltd.	1959	aMag.	1-NR	2640'
(Lanoullier) N.T.S. 32-E	8217	T	Paudash Mines Ltd.	1959	(aEM)	1	2640'
(Lanoullier) N.T.S. 32-E	9563	4,6	Paudash Mines Ltd.	1959	(aEM)	1	2640'
La Peltrie	16346	7	Noranda Exploration Co. Ltd.	1965	EM	1	200'
(La Peltrie)	16349	5	Noranda Exploration Co. Ltd.	1965	EM	1	400'
La Peltrie	16350	6	Noranda Exploration Co. Ltd.	1965	EM	1	400'
(La Peltrie) N.T.S. 32-E	8217	3	Paudash Mines Ltd.	1959	aMag.	1-NR	2640'
(La Peltrie) N.T.S. 32-E	8217	T	Paudash Mines Ltd.	1959	(aEM)	1	2640'
(La Peltrie) N.T.S. 32-E	9563	4	Paudash Mines Ltd.	1959	(aEM)	1	2640'
(La Peltrie)	9141	2	Prospectors Airways Co. Ltd.	1959	(aEM) (aEM)	1 1	1000' 1320'
Massicotte	16345	5	Noranda Exploration Co. Ltd.	1965	EM	1	200'
Massicotte	16347	4	Noranda Exploration Co. Ltd.	1965	EM	1	200'
Massicotte	16353	3	Noranda Exploration Co. Ltd.	1965	EM	1	200'

(Massicotte) N.T.S. 32-E	8217	2	Paudash Mines Ltd.	1959	aMag	1-NR	2640'
(Massicotte)	9141	1	Prospectors Airways Co. Ltd. (filed under Carheil)	1959	(aEM) (aEM)	1 1	1320' 1000'
Montgolfier	9556	1	Ansil Mines Ltd.	1959	Mag.	1-NR	2640'
Montgolfier	(5684)	2	Atlin-Ruffner Mines (B.C.) Ltd.	1957	EM	1	200'
Montgolfier	(6046)	3	Atlin-Ruffner Mines(B.C.)Ltd.	1957	Mag.	10	200'
Montgolfier	6341-B	4	Empire Oil & Minerals Ltd.	1957	Mag.	1	400'
Montgolfier	9298	5	Gutheric Claims	1959	Mag., EM	2	400'
Montgolfier	9574	6	Kennco Explorations Can. Ltd.	1959	EM	2	400'
Montgolfier	9577	6	Kennco Explorations Can. Ltd.	1959	Mag.	1	200'
Montgolfier	(16118)	7	Miro Mines Ltd.	1965	Mag. Mag.	1 1	50' 100'
(Orvilliers)	(6046)	1	Atlin-Ruffner Mines(B.C.)Ltd.	1957	Mag.	10	200'
Orvilliers	7642	3	Leeds Metals Co. Ltd.	1958	Mag.	1	400'
Orvilliers	6339	2	Leitch Gold Mines Ltd. and Highland Bell Ltd.	1958	Mag.	1	400'
(Puiseaux)	(7649)	1	Lambton Copper Mines Ltd.	1957	Mag.	1	400'
(Puiseaux)	6339	2	Leitch Gold Mines Ltd. and Highland Bell Ltd.	1958	Mag.	1	400'
Raymond	7649-A	1	Lambton Copper Mines Ltd.	1957	Mag.	1	400'
Sainte-Hélène	9042	10	American Metal Climax Inc.	1959	Mag., EM (EM)	4 1	200' 2640'
Sainte-Hélène	8803	11	Area Mines Ltd.	1959	EM	2	400'
Sainte-Hélène	10098	12	Area Mines Ltd.	1960	EM	1	200'
Sainte-Hélène	8838	13	Aumacho River Mines Ltd.	1959	Mag.	1	200'
Sainte-Hélène	10196	13	Aumacho River Mines Ltd.	1959	EM	1	200'

TOWNSHIP	FILE NUMBER GM-	LOCATION ON TOWNSHIP INDEX MAP	DATA SUBMITTED BY	DATE OF DOCUMENT	TYPE OF SURVEY	NUMBER OF MAPS	SCALE OF MAPS
Sainte-Hélène	10197	13	Aumacho River Mines Ltd.	1960	EM	1	200'
(Sainte-Hélène)	9214	17	Consolidated Negus Mines Ltd.	1959	aMag., aEM	2	1320'
Sainte-Hélène	9163	14	J.E. Desrosiers Claims	1959	Mag., EM	1	400'
(Sainte-Hélène)	8568	8	Dominion Explorers Ltd.	1959	Mag., EM	1	200'
Sainte-Hélène	7728	33	O.N. Edwards, Claims	1958	(aEM)	2	2640'
Sainte-Hélène	9727	15	Fab Metal Mines Ltd.	1960	Mag., EM	2	200'
Sainte-Hélène	8761-A	18	File Lake Exploration Ltd.	1959	aMag., EM	1 1	400' 2640'
Sainte-Hélène	10483	19	Foreign Exploration Co. Ltd.	1959	EM	1	400'
Sainte-Hélène	8774	20	Goldmaque Mines Ltd.	1959	EM	1	400'
Sainte-Hélène	8847	21	Hazeur Chibougamau Mines Ltd.	1959	Mag.	1	200'
(Sainte-Hélène)	8773	6	Iso Uranium Mines Ltd.	1959	Mag., EM	4	200'
(Sainte-Hélène)	9303	7	Jellicoe Mines (1939) Ltd.	1959	Mag., EM	1	400'
Sainte-Hélène	8923	22	Kelly-Desmond Mining Corp. Ltd.	1959	EM	2	400'
Sainte-Hélène	8927	34	Kelly-Desmond Mining Corp. Ltd.	1959	aEM (aEM)	1 1	400' 1320'
Sainte-Hélène	8903	35	Lynwatin Nickel Copper Ltd.	1959	aEM (aEM)	1 1	400' 1320'
(Sainte-Hélène)	8830	41	New West Amulet Mines Ltd.	1959	EM	1	1320'
Sainte-Hélène	8764	36	Nipiron Mines Ltd.	1958	(aEM)	1	1320'
Sainte-Hélène	7810-A	23 24 25	Noranda Exploration Co. Ltd.	1958	aEM	4	1000'

Sainte-Hélène	8812	26	Noranda Exploration Co. Ltd.	1959	Mag., EM	4	200'
Sainte-Hélène	8813	1	Noranda Exploration Co. Ltd.	1959	Mag., EM	8	200'
Sainte-Hélène	8814	3	Noranda Exploration Co. Ltd.	1959	Mag., EM	4	200'
					Mag.	1	1000'
Sainte-Hélène	(9165)	2	Noranda Exploration Co. Ltd.	1959	Mag.	4	200'
Sainte-Hélène	9166	23	Noranda Exploration Co. Ltd.	1959	Mag., EM	2	200'
Sainte-Hélène	9167	24	Noranda Exploration Co. Ltd.	1959	Mag., EM	2	200'
Sainte-Hélène	9168	25	Noranda Exploration Co. Ltd.	1959	Mag.	1	200'
Sainte-Hélène	10165-A	43	Noranda Exploration Co. Ltd. Kelly Group	1960	Mag., EM	1	200'
Sainte-Hélène	(10166)	2	Noranda Exploration Co. Ltd. Brivan Group (East & West sheets)	1959	EM	2-NR	200'
Sainte-Hélène	10166	3	Noranda Exploration Co. Ltd. Maingot Group	1959	EM	1-NR	200'
Sainte-Hélène	10193-A	1	Noranda Exploration Co. Ltd.	1959	EM	2-NR	200'
Sainte-Hélène	(11849)	2	Noranda Exploration Co. Ltd.	1961	Mag., EM	4-NR	200'
					Location	1	2640'
Sainte-Hélène	(15908)	2	Noranda Exploration Co. Ltd.	1965	EM	1	200'
Sainte-Hélène	(13613)	4	Noranda Exploration Co. Ltd.	1963	Mag., EM	2	200'
(Sainte-Hélène)	16238	42	Noranda Exploration Co. Ltd.	1965	EM	2	200'
(Sainte-Hélène)	16441	6	Noranda Exploration Co. Ltd. Sheet 1	1965	EM	1	200'
(Sainte-Hélène)	9266	9	Nordex Development Ltd.	1959	Mag.	2	300'
Sainte-Hélène	8921	27	Osisko Lake Mines	1959	Mag., EM	1	200'
Sainte-Hélène	9082	37	Ranworth Explorations Ltd.	1959	aMag ,aEM	2	1320'
Sainte-Hélène	10198	28	Ranworth Explorations Ltd.	1960	Mag., EM	3	200'
Sainte-Hélène	9040	38	Rio Tinto Canadian Exploration Ltd.	1959	(aEM)	1	1320'

TOWNSHIP	FILE NUMBER GM-	LOCATION ON TOWNSHIP INDEX MAP	DATA SUBMITTED BY	DATE OF DOCUMENT	TYPE OF SURVEY	NUMBER OF MAPS	SCALE OF MAPS
Sainte-Hélène	8590	29	St. Helen Mining Exploration Co. Ltd.	1959	Mag., EM	2	200'
Sainte-Hélène	10191	29	St. Helen Mining Exploration Co. Ltd.	1959	AFMag.,EM	3	200'
Sainte-Hélène	10192	29	St. Helen Mining Exploration Co. Ltd.	1959	EM	1	400'
(Sainte-Hélène)	8756	32	St. Mary's Explorations Ltd.	1959	aEM	1 1	400' 1320'
(Sainte-Hélène)	13986	30	St. Mary's Explorations Ltd.	1959	Mag., EM	1-NR	200'
Sainte-Hélène	8896	39	Southwest Potash Corp.	1959	aEM	1	400'
Sainte-Hélène	8655	40	Three Brothers Mining Exploration	1959	(aEM)	1	1320'
(Sainte-Hélène)	8765	16	Voyager Exploration Ltd.	1959	(aEM)	1	1000'
Sainte-Hélène	9019	31	Westfield Minerals Ltd.	1959	Mag., EM	1	400'
(Sainte-Hélène)	9267	5	Westfield Minerals Ltd.	1959	EM	1	400'
(Subercase)	9242	17	Camp Bird Mining Ltd.	1959	aEM aMag., aEM	1 2	1320' 400'
Subercase	8936	2	Consolidated Mining & Smelting Co. of Canada Ltd.	1959	EM Location	1 1	400' 2 miles
Subercase	9078	3	Consolidated Mining & Smelting Co. of Canada Ltd.	1959	EM Location	1 1	400' 2 miles
Subercase	9214	19	Consolidated Negus Mines Ltd.	1959	aMag.,aEM	2	1320'
Subercase	9217	4	Copper Prince Mines Ltd.	1959	Mag., EM	1	200'
Subercase	(15869)	24	John I. Cummings (In Trust)	1964	Mag., EM	1	100'

Subercase	9007	20	Daniel Mining Co.	1959	aEM	1 1	400' 1320'
Subercase	8568	5	Dominion Explorers Ltd.	1959	Mag., EM	1	200'
Subercase	10351	6	Grasset Lake Mines Ltd.	1959	EM	1	200'
Subercase	9085	7	Gwillim Lake Gold Mines Ltd.	1959	Mag.	1	400'
Subercase	9036	23	Head of the Lakes Iron Ltd.	1959	(aEM)	1	1320'
(Subercase)	9303	1	Jellicoe Mines (1934) Ltd.	1959	Mag., EM	1	400'
(Subercase)	9352	18	Kelly Desmond Mining Co. St. Mary's Exploration Ltd. Neumac Corp. Ltd. Head of the Lake Iron Ltd. Daniel Mining Co. Ltd. Temanda Mines Ltd.	1959	aMag., aEM	3	1320'
(Subercase)	8830	25	New West Amulet Mines Ltd.	1959	EM	1	1320'
Subercase	7722	21	M.L. Newlund & O.N. Edwards Claims	1959	aEM	2	2640'
Subercase	8878	8	Newlund Mines Ltd.	1959	Mag., EM	4	200'
Subercase	9183-A	9	Nipiron Mines Ltd.	1959	Mag., EM	2	300'
Subercase	9183-B	9	Nipiron Mines Ltd.	1959	EM	1	100'
(Subercase)	7810-A	11	Noranda Explorations Ltd.	1959	aEM	4	1000'
Subercase	8818	10	Noranda Exploration Co. Ltd.	1959	Mag., EM Location	30 2	200' 1320'
Subercase	9227	11	Noranda Exploration Co. Ltd.	1959	Mag., EM	2	200'
Subercase	10785-A	11	Noranda Exploration Co. Ltd.	1959	Mag., EM	1-NR	200'
Subercase	9266	16	Nordex Development Ltd.	1959	Mag.	2	300'
Subercase	8823	15	Norsyncomaque Mining Co. Ltd.	1959	Mag.,EM	2	200'
(Subercase)	8926	15	Norsyncomaque Mining Co. Ltd.	1959	aMag.,aEM (aMag.(aEM)	2 1	400' 1320'
Subercase	7808	14	Orchan Mines Ltd.	1958	Mag., EM	2	400'

TOWNSHIP	FILE NUMBER GM-	LOCATION ON TOWNSHIP INDEX MAP	DATA SUBMITTED BY	DATE OF DOCUMENT	TYPE OF SURVEY	NUMBER OF MAPS	SCALE OF MAPS
Subercase	9009-A	14	Orchan Mines Ltd.	1959	Mag., EM	4	200'
Subercase	8881	13	St. Mary's Explorations Ltd.	1959	aEM aMag.	2 1	400' 1320'
Subercase	11467	13	St. Mary's Explorations Ltd.	1959	Mag., EM	1	200'
Subercase	8765	22	Voyager Explorations Ltd.	1959	(aEM)	1	1000'
Subercase	9020	12	Westfield Minerals Ltd.	1959	EM	1	300'
(Valrennes)	(16826)	29	Acme Gas & Oil Co. Ltd.	1965	Mag., EM	2	200'
Valrennes	(17152)	25	Acme Gas & Oil Co. Ltd.	1965	EM	1	200'
Valrennes	7727	11	Atlin Ruffner Mines Ltd.	1958	EM Mag.	1 1	200' 400'
Valrennes	9139	12	Canperu Mining Corp.	1959	Mag., EM	1	400'
Valrennes	6616-A	15	Conwest Exploration Co. Ltd.	1958	EM	1	200'
Valrennes	7778	16	Conwest Exploration Co. Ltd.	1958	EM	2-NR	200'
Valrennes	7862	18	Conwest Exploration Co. Ltd.	1958	aMag.,aEM	2	2000'
Valrennes	9400	15	Conwest Exploration Co. Ltd.	1959	(aEM)	1	2640'
Valrennes	10727-A	16	Conwest Exploration Co. Ltd.	1960	Mag., EM Gravity	3	200'
Valrennes	10728	17	Conwest Exploration Co. Ltd.	1960	(aEM)	1	2640'
Valrennes	10728	11	Conwest Exploration Co. Ltd.	1960	(aEM)	1	2640'
Valrennes	10729	13	Conwest Exploration Co. Ltd.	1960	(aEM)	1	2640'
Valrennes	10731	15	Conwest Exploration Co. Ltd.	1960	Mag., EM Gravity	3	200'
Valrennes	8868	14	Copperstream Mines Ltd. (location on index map not exact)	1959	Mag., EM	1	400'

Valrennes	10037	14	Copperstream Mines Ltd. (location on index map not exact)	1959	Mag., EM	1	400'
Valrennes	(16387)	26	Delhi Pacific Mine Ltd.	1965	Mag., EM	2	200'
(Valrennes)	15772	25	Dome Exploration Ltd.	1962	Mag., EM	2	400'
Valrennes	11786	23	Dillman Claims	1962	Mag.	1	200'
(Valrennes)	8501-A	8	East Trinity Mining Corp.	1959	Mag., EM	1	200'
Valrennes	(15870)	27	Jelex Mines Ltd.	1965	Mag.	1	200'
Valrennes	(15930)	27	Jelex Mines Ltd.	1965	EM	1	200'
Valrennes	(15505)	21	Kerr-Addison Mines Ltd.	1964	Mag.	1	200'
Valrennes	(15505)	22	Kerr-Addison Mines Ltd.	1964	Mag.	1	200'
Valrennes	15506	20	Kerr-Addison Mines Ltd.	1964	Mag.	1	400'
Valrennes	(16453)	28	Kerr-Addison Mines Ltd.	1965	Mag., EM	4	200'
(Valrennes) N.T.S. 32-E	11005	19	B.W. Lang & Participants	1960	aMag.	1	1320'
(Valrennes)	15664	30	B.W. Lang Claims	1964	(aMag.,aEM)	1	1320'
Valrennes	(11112)	1	Massval Mines Ltd. (Conductor N-2	1961	Mag., EM Location	2 1	200' 1 mile
Valrennes	(11112)	2	Massval Mines Ltd. (Conductor N-8)	1961	Mag., EM Location	2 1	200' 1 mile
Valrennes	15457	24	Mining Corporation of Canada (1964) Ltd.	1964	Mag., EM	2	400'
Valrennes	(12648)	3	New Jack Uranium Mines Ltd.	1962	EM	1	400'
(Valrennes)	(10767)	1	Paudash Mines Ltd. (Conductor N-2). (filed under Joutel Township)	1961	Mag., EM Location	2 1	200' 1 mile
(Valrennes)	(10767)	2	Paudash Mines Ltd. (Conductor N-8). (filed under Joutel Township)	1961	Mag., EM Location	2 1	200' 1 mile

TOWNSHIP	FILE NUMBER GM-	LOCATION ON TOWNSHIP INDEX MAP	DATA SUBMITTED BY	DATE OF DOCUMENT	TYPE OF SURVEY	NUMBER OF MAPS	SCALE OF MAPS
Valrennes	14323	4	Paudash Mines Ltd.	1964	Mag.	1	200'
Valrennes	15023	4	Paudash Mines Ltd.	1964	Mag., EM	2	200'
(Valrennes)	11424	7	Prospectors Airways Co. Ltd.	1960	EM Location	1 1	400' 1000'
Valrennes	10641	17	Rio Tinto Canadian Exploration Ltd.	1960	(aEM)	1	2640'
Valrennes	(14664)	5	Rio Tinto Canadian Exploration Ltd.	1964	Mag., EM Gravity Location	4 1	400' 2640'
(Valrennes)	8754	9	Sentry Petroleums Ltd.	1959	Mag.	1	200'
(Valrennes)	8900	10	Signal Chibougamau Mining Co.	1959	EM	1	400'
Valrennes	(9449)	6	Tazin Mines Ltd.	1960	Mag., EM	2	400'
(Valrennes)	11365	9	Utopia Gold Mines Ltd.	1961	Mag., EM	1	200'

APPENDIX III

LIST OF GEOLOGICAL AND GEOCHEMICAL MAPS WITHIN THE MAP-AREA IN THE FILES OF THE QUEBEC DEPARTMENT OF NATURAL RESOURCES

A list of all geological and geochemical maps pertaining to the map-area and submitted to the Quebec Department of Natural Resources prior to September 1, 1966, is given below. The area covered by each map is shown on the same township index maps that show the location of each geophysical map. The number appearing on each township index map serves to identify the various geological maps listed in the compilation table also given below.

The Mineral Deposits Service of the Quebec Department of Natural Resources would be pleased to receive any geological or geochemical maps relating to the map-area which are not included in this compilation. These maps would then be available to aid any company working in the area in the future.

In order to give the maximum amount of information regarding the geological and geochemical maps submitted to the Department of Natural Resources, the following symbols have been used in the compilation table listing the surveys:

(Township) — The use of brackets with the name of a township indicates that the geological or geochemical map in question may cover part of an adjoining township and that the map is filed under an adjoining township in our departmental files.

(9000) — A bracket around the file number indicates that these data were not available to the public as of September 1, 1966, as the claims were still held by a company. Copies of these documents may not be made available to the public until the expiry date of the claims.

T — The letter T is used instead of a number in the column entitled "Location on Township Index Map" when the geological or geochemical map covers most of the township.

1-NR — The letter NR after the figure in the column entitled "Number of Maps" indicates that no geological report was submitted with the maps. In all other cases geological reports are available.

Copies of those geological and geochemical documents, the file number of which is not within brackets, are available to the public at the following rate:

Reports $0.15 per page

Maps $1.08 per square foot if the Department of Natural Resources does not have a negative, $0.08 per square foot if the Department of Natural Resources has a negative.

Reproduction of maps for which the Department does not have a negative is done by an independent firm which bills the customer directly.

The name of the township, the file number, the name of the company, and a description of the documents desired (map and/or report) should be sent to:

Department of Natural Resources,
Mineral Deposits Service,
1620 Boulevard de l'Entente,
Quebec, P.Q.

LIST OF GEOLOGICAL AND GEOCHEMICAL MAPS IN THE FILES OF THE QUEBEC DEPARTMENT OF NATURAL RESOURCES

TOWNSHIP	FILE NUMBER GM-	LOCATION ON TOWNSHIP INDES MAP	DATA SUBMITTED BY	DATE OF MAP	TYPE OF MAP	NUMBER OF MAPS	SCALE OF MAPS
Brouillan	(16078)	2	Juma Mining & Exploration Ltd. (see plan JB-2 in geological report)	1964	Geology	1	2640'
Carheil	17746	5	Mining Corporation of Canada (1964) Ltd.	1966	Geology	1	400'
Desmazures	(11547)	11	Kennco Exploration Co. Ltd.	1958	Geology	1-NR	1320'
(Desmazures)	(10166-B)	1	Noranda Exploration Co. Ltd. Sigma Group (filed under Ste-Hélène Township)	1959	Geology EM	1-NR	200'
Gaudet	13984	3	Sogemines Development Co. Ltd.	1959	Geology	1-NR	1320'
Joutel	11374	23	Alcourt Mines Ltd.	1961	Geology, Geochem., Mag., EM	1	200'
Joutel	(11950)	15	Canadian Dyno Mines Ltd.	1961	Geology	1	300'
Joutel	16609	45	Canadian Lencourt Mines Ltd.	1965	Geology	1	200'
Joutel	11539	17	Dome Exploration (Que.) Ltd.	1961	Geology	1-NR	200'
Joutel	14150	T	Equity Exploration Ltd.	1964	Geology	1-NR	5280'
Joutel	(12693)	27	Joutel Copper Mines Ltd.	1962	Geology	1	400'
Joutel	(15660)	48 47	Juma Mining & Exploration Ltd. For geological report refer to (GM-16106) and (GM-16765)	1964	Geology Geochem.	2	200'

TOWNSHIP	FILE NUMBER GM-	LOCATION ON TOWNSHIP INDEX MAP	DATA SUBMITTED BY	DATE OF MAP	TYPE OF MAP	NUMBER OF MAPS	SCALE OF MAPS
Joutel	15090	56	Kerr Addison Mines Ltd.	1964	Geology	1	400'
Joutel	11355-B	3	Mining Corporation of Canada Ltd.	1961	Geology	1	400'
Joutel	(11536-B)	21	Mining Corporation of Canada Ltd.	1961	Geology	1	400'
Joutel	(16878)	53	North Devon Mines Ltd.	1965	Geology	1	200'
La Gauchetière	9895	15	Iso Mines Ltd.	1959	Geology and (EM)	2	200'
					Location	1	1000'
La Gauchetière	10123	22	Newlund Mines Ltd.	1959	Geology	1	200'
					Location	1	1000'
(La Gauchetière)	(10166-B)	28	Noranda Exploration Co. Ltd. Timmins Group	1959	Geology and EM	1-NR	200'
La Gauchetière	11319	28	Noranda Exploration Co. Ltd.	1961	Geology and Mag.	1-NR	200'
La Gauchetière	8866	28	N.A. Timmins (1938) Ltd.	1958	Geology	1-NR	400'
Montgolfier	(6046)	8	Atlin Ruffner Mines Ltd.	1957	Geology	1	200'
(Orvilliers)	(6046)	4	Atlin Ruffner Mines Ltd.	1957	Geology	1	200'
(Sainte-Hélène)	9895	6	Iso Mines Ltd.	1959	Geology and (EM)	2	200'
					Location	1	1000'

Sainte-Hélène	(10166-B)	2	Noranda Exploration Co. Ltd. Brivan 2 Group (west and east sheets)	1959	Geology and EM	2-NR	200'
Sainte-Hélène	10193-A	1	Noranda Exploration Co. Ltd. Jenny Group (east sheet)	1959	Geology and EM	1-NR	200'
Sainte-Hélène	(14112)	2	Noranda Exploration Co. Ltd.	1964	Geochem.	2	2640'
Sainte-Hélène	(11849)	2	Noranda Exploration Co. Ltd. Brivan 2 Group (east and west sheets)	1959	Geology and Mag.	2	200'
Valrennes	7766	13	Conwest Exploration Co. Ltd.	1958	Geology	1	400'
Valrennes	10727-A	16	Conwest Exploration Co. Ltd.	1960	Geochem.	1	200'
(Valrennes)	(14150)	T	Equity Exploration Ltd.	1964	Geology	1-NR	5280'
Valrennes	(15505)	22	Kerr-Addison Mines Ltd.	1964	Geology	1	200'
Valrennes	15024	4	Paudash Mines Ltd.	1964	Geology Geochem.	1 1	200' 200'

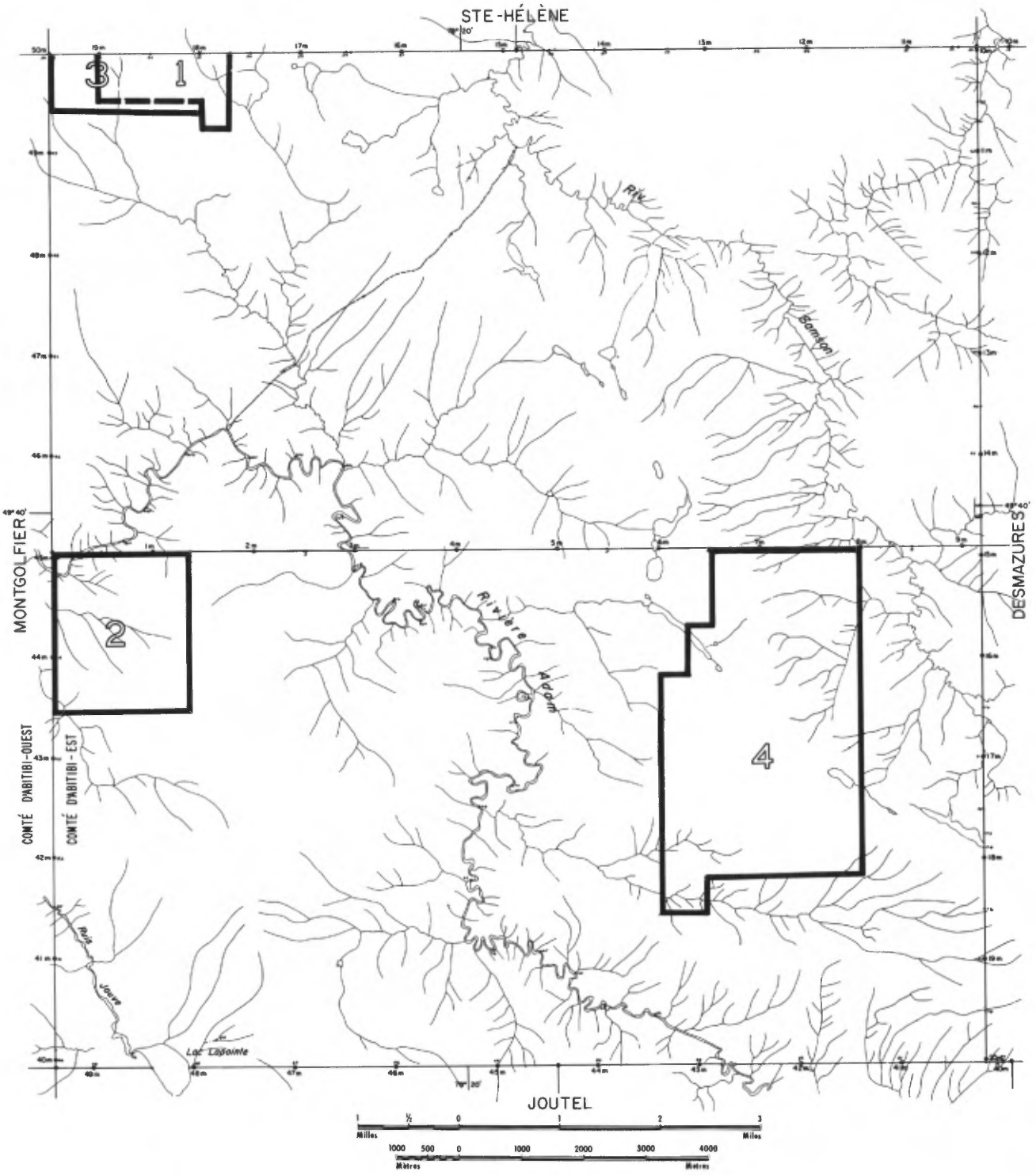
ALOIGNY

ABITIBI - EST

PROVINCE DE QUÉBEC

MINISTÈRE DES

RICHESSES NATURELLES

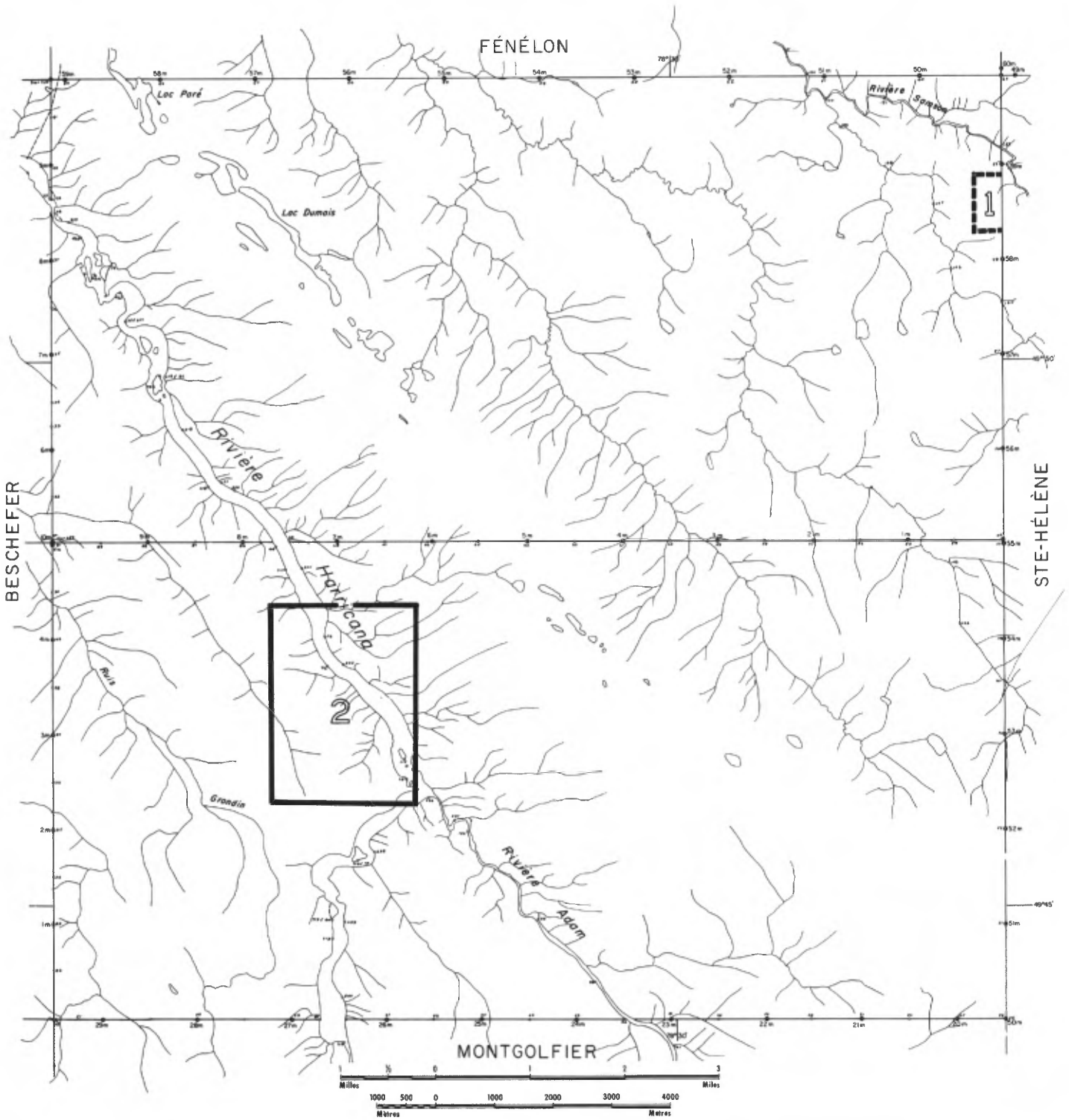


PROVINCE DE QUÉBEC

MINISTÈRE DES
RICHESSES NATURELLES

BAPST

COMTÉ D'ABITIBI-OUEST



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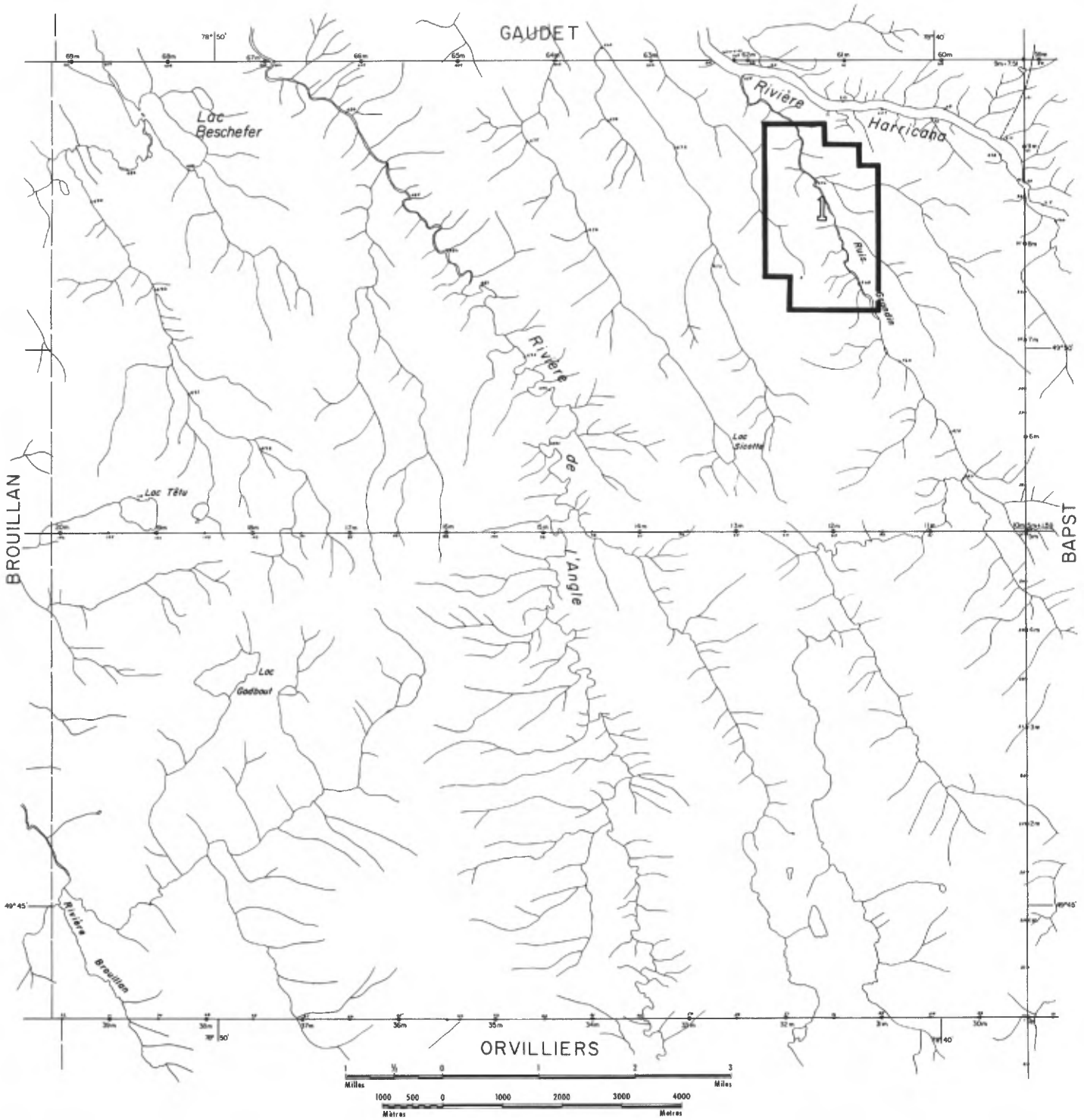
MINISTÈRE DES

RICHESSES NATURELLES

BESCHEFER

COMTÉ D'ABITIBI-OUEST



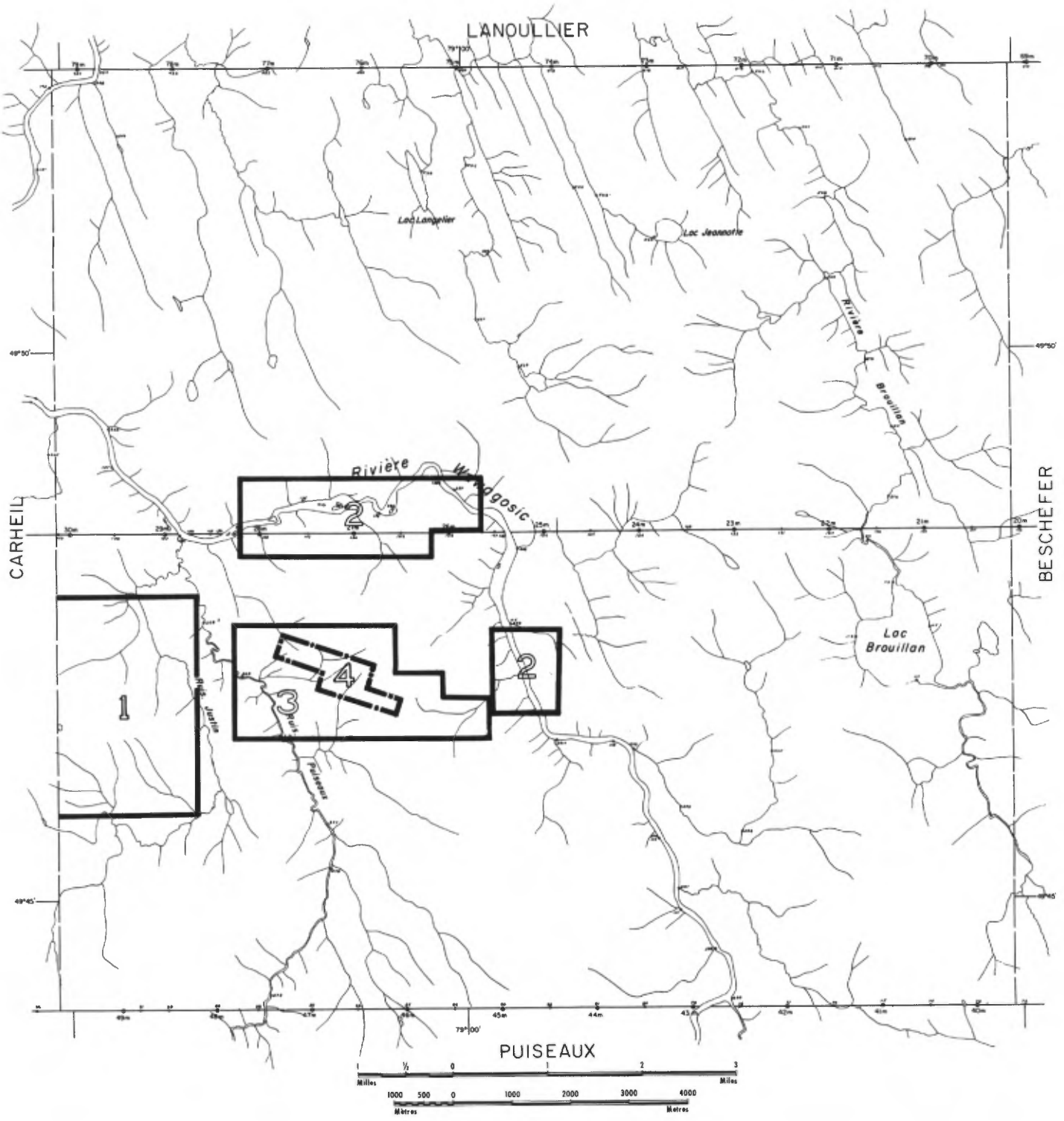
PROVINCE DE QUÉBEC

MINISTÈRE DES

RICHESSES NATURELLES

BROUILLAN

COMTÉ D'ABITIBI-OUEST

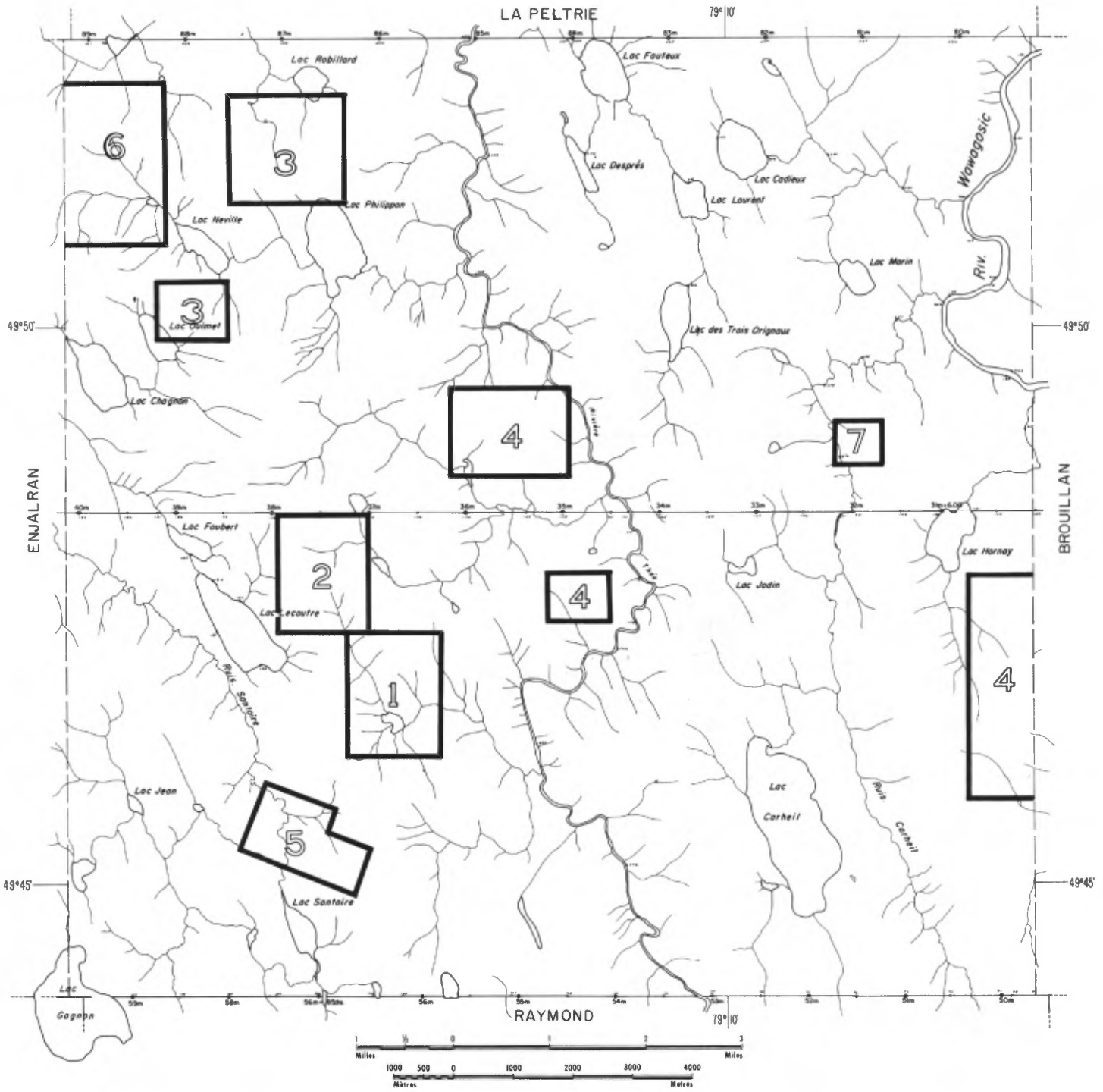


PROVINCE DE QUÉBEC

MINISTÈRE DES
RICHESSES NATURELLES

CARHEIL

COMTÉ D'ABITIBI-OUEST

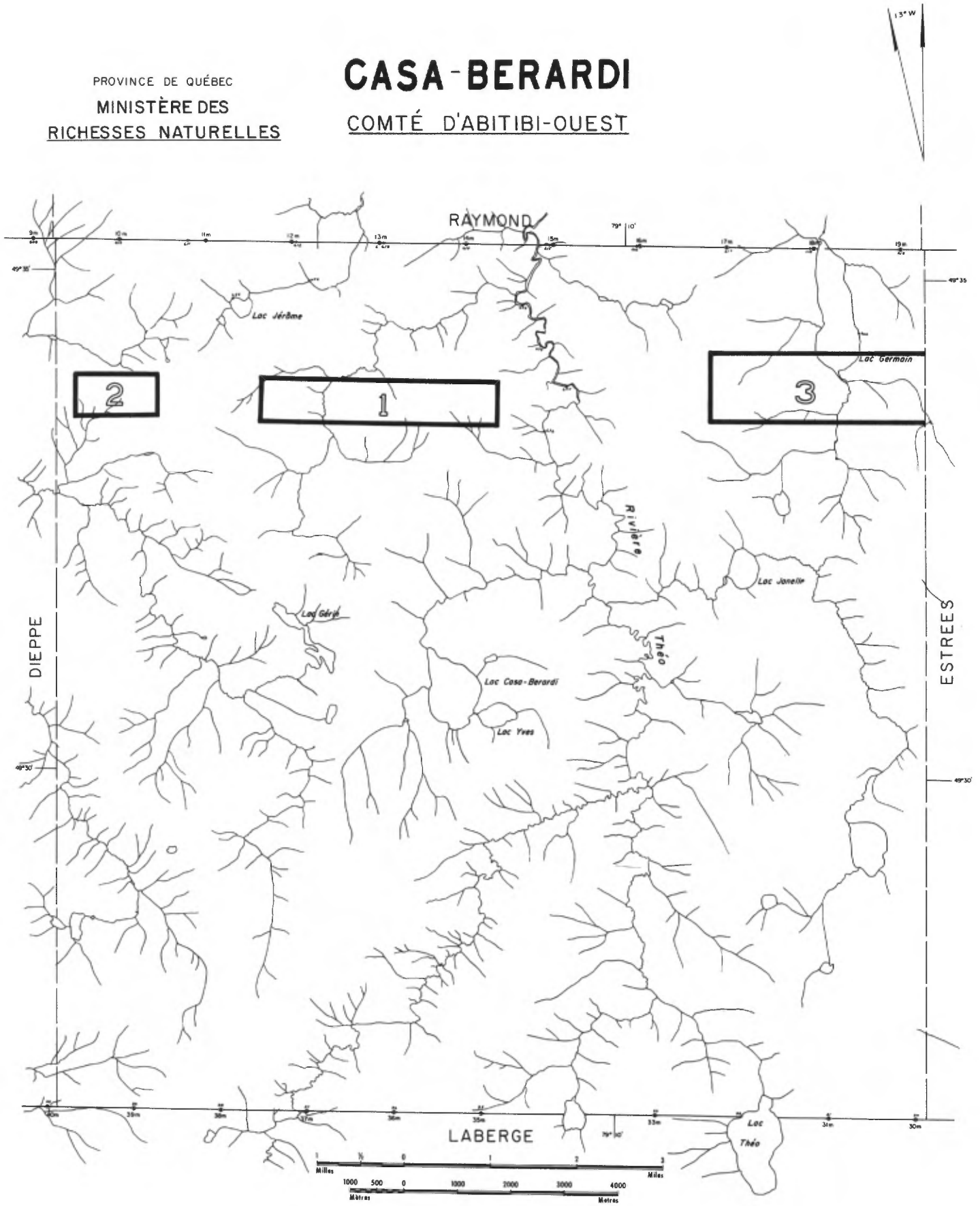


PROVINCE DE QUÉBEC

MINISTÈRE DES
RICHESSES NATURELLES

CASA-BERARDI

COMTÉ D'ABITIBI-OUEST



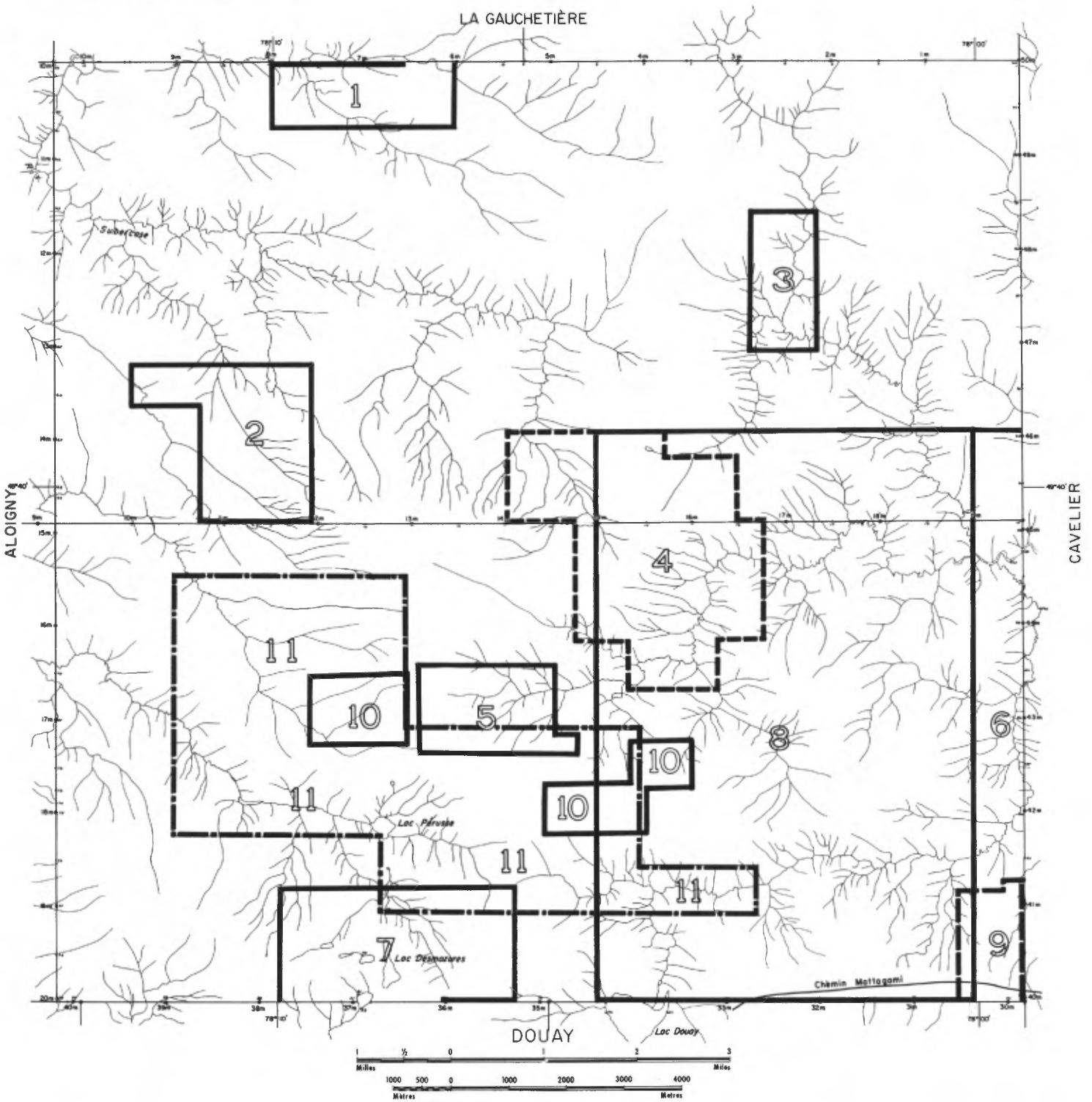
DESMAZURES

ABITIBI - EST

PROVINCE DE QUÉBEC

MINISTÈRE DES

RICHESSES NATURELLES

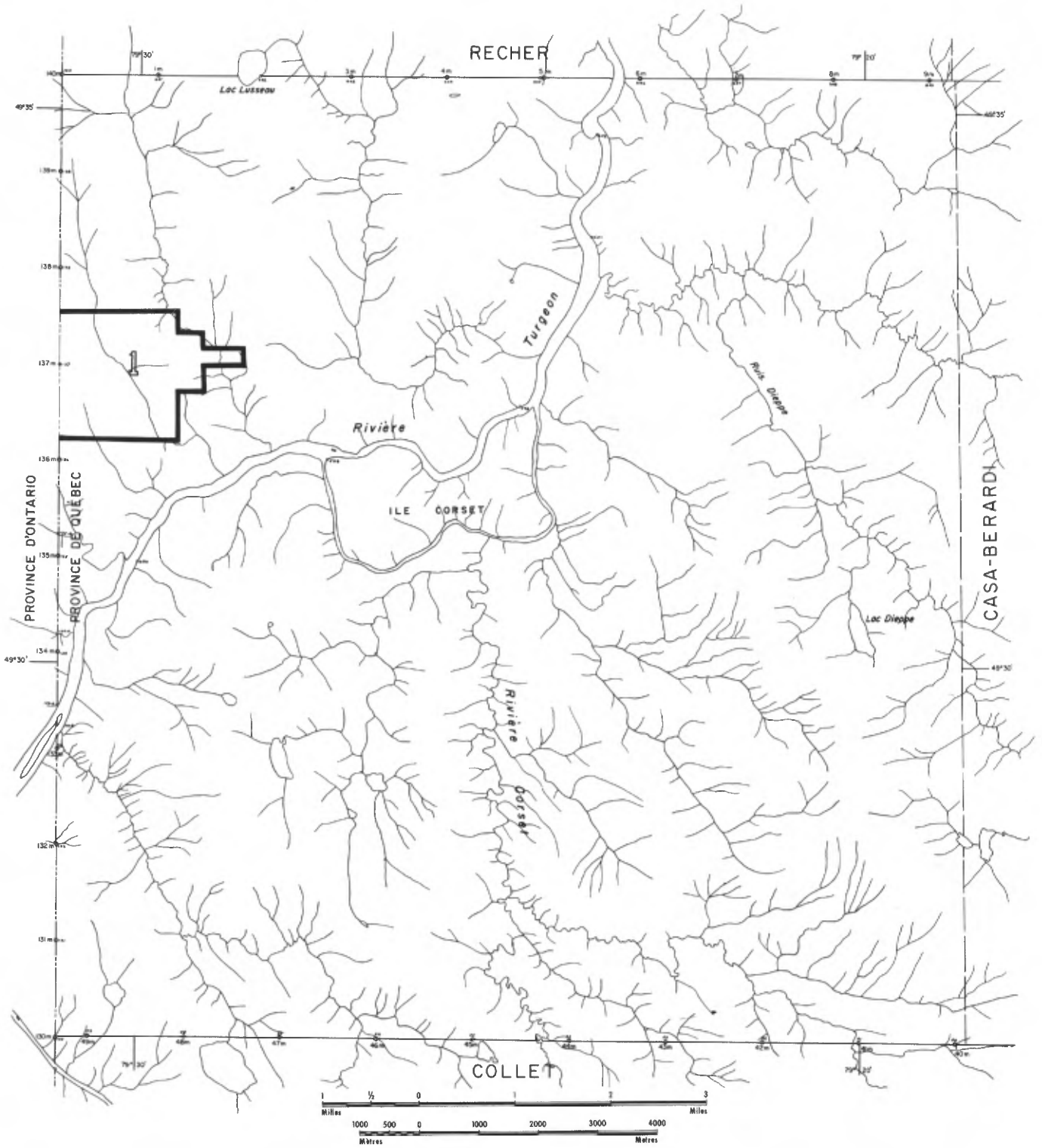


PROVINCE DE QUÉBEC

MINISTÈRE DES
RICHESSES NATURELLES

DIEPPE

COMTÉ D'ABITIBI-OUEST



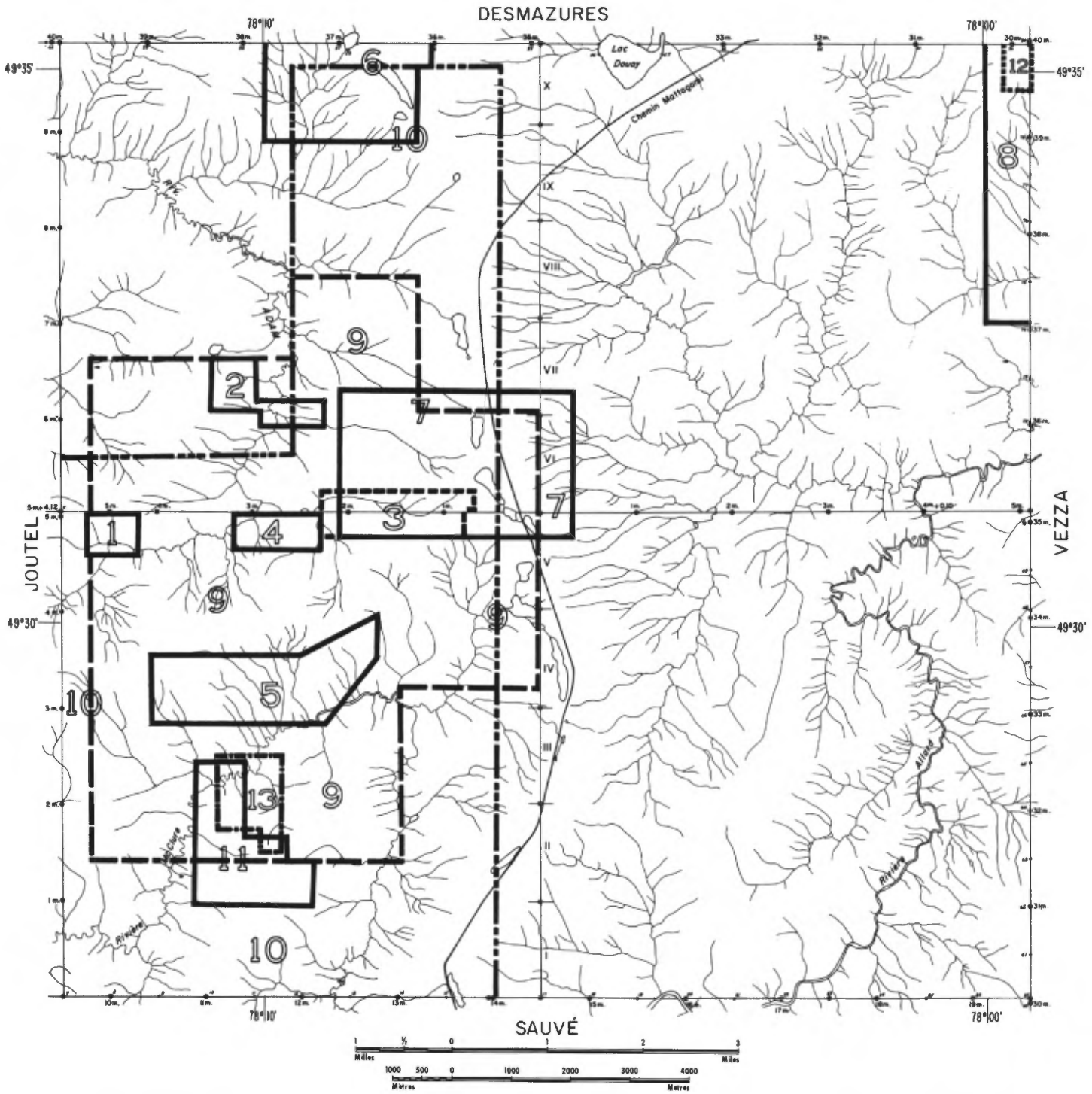
PROVINCE DE QUÉBEC

MINISTÈRE DES

RICHESSES NATURELLES

DOUAY

COMTÉ D'ABITIBI-EST

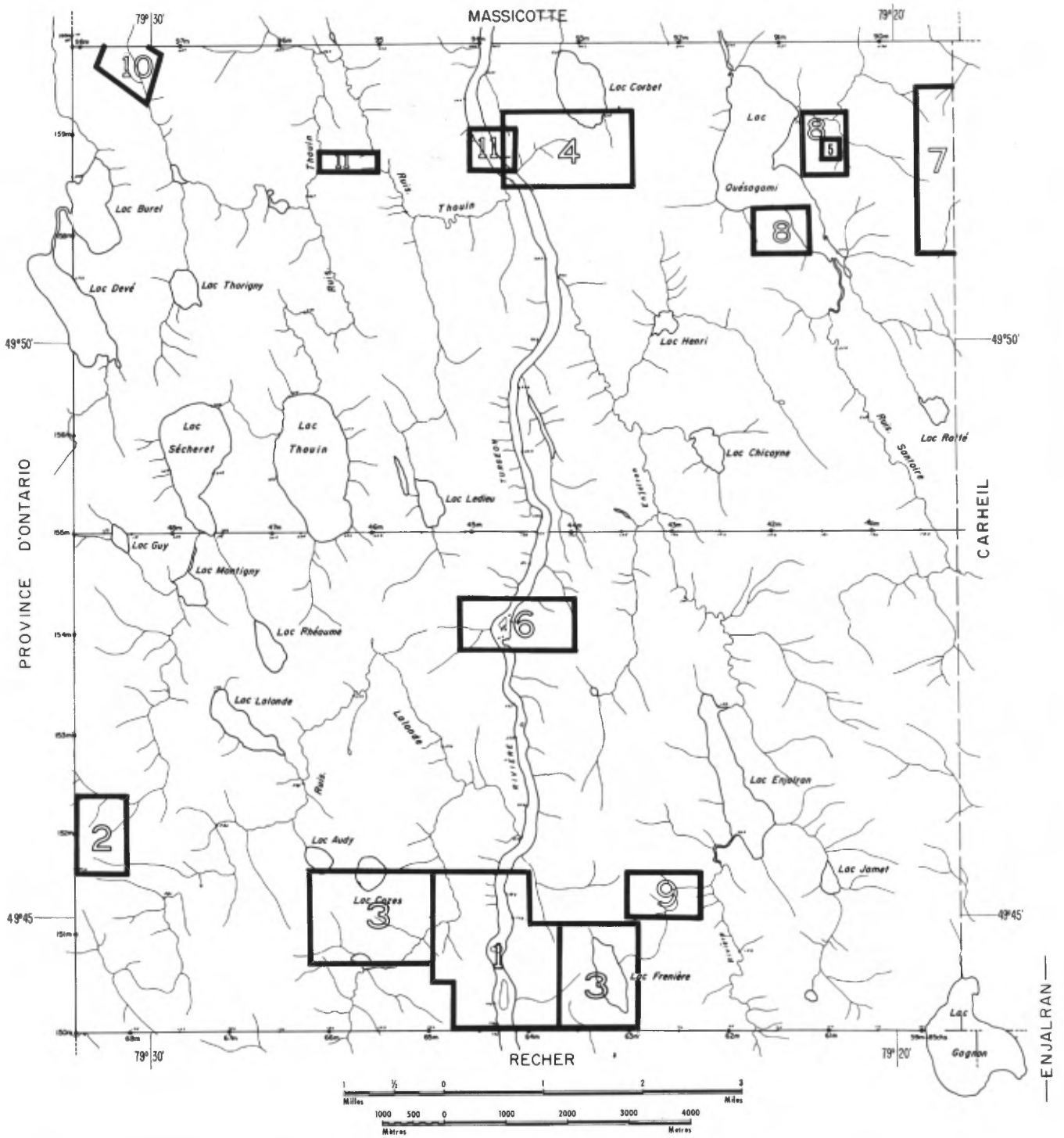


PROVINCE DE QUÉBEC

MINISTÈRE DES
RICHESSES NATURELLES

ENJALRAN

COMTÉ D'ABITIBI-OUEST

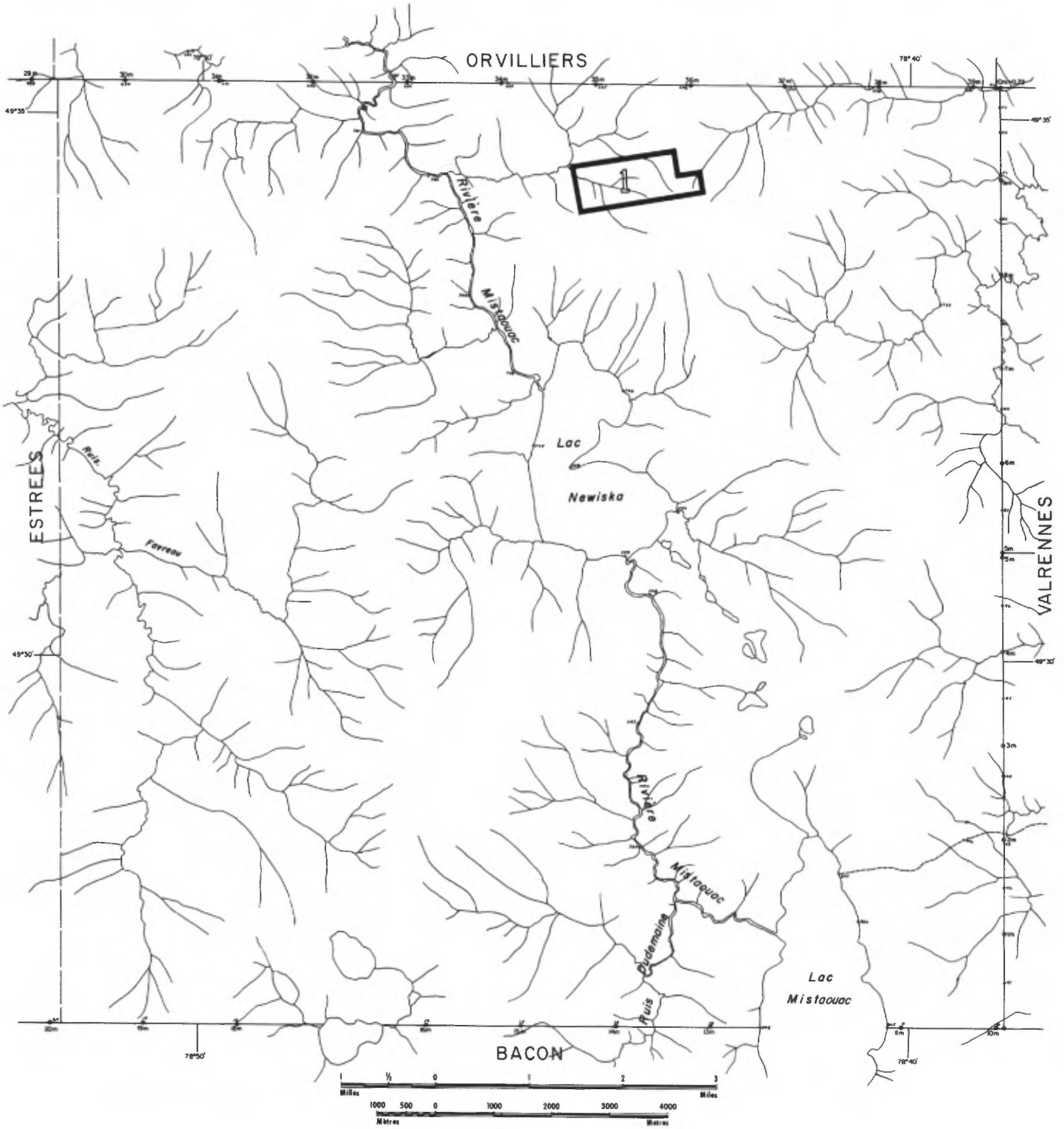


PROVINCE DE QUÉBEC

MINISTÈRE DES
RICHESSES NATURELLES

ESTRADES

COMTÉ D'ABITIBI-OUEST

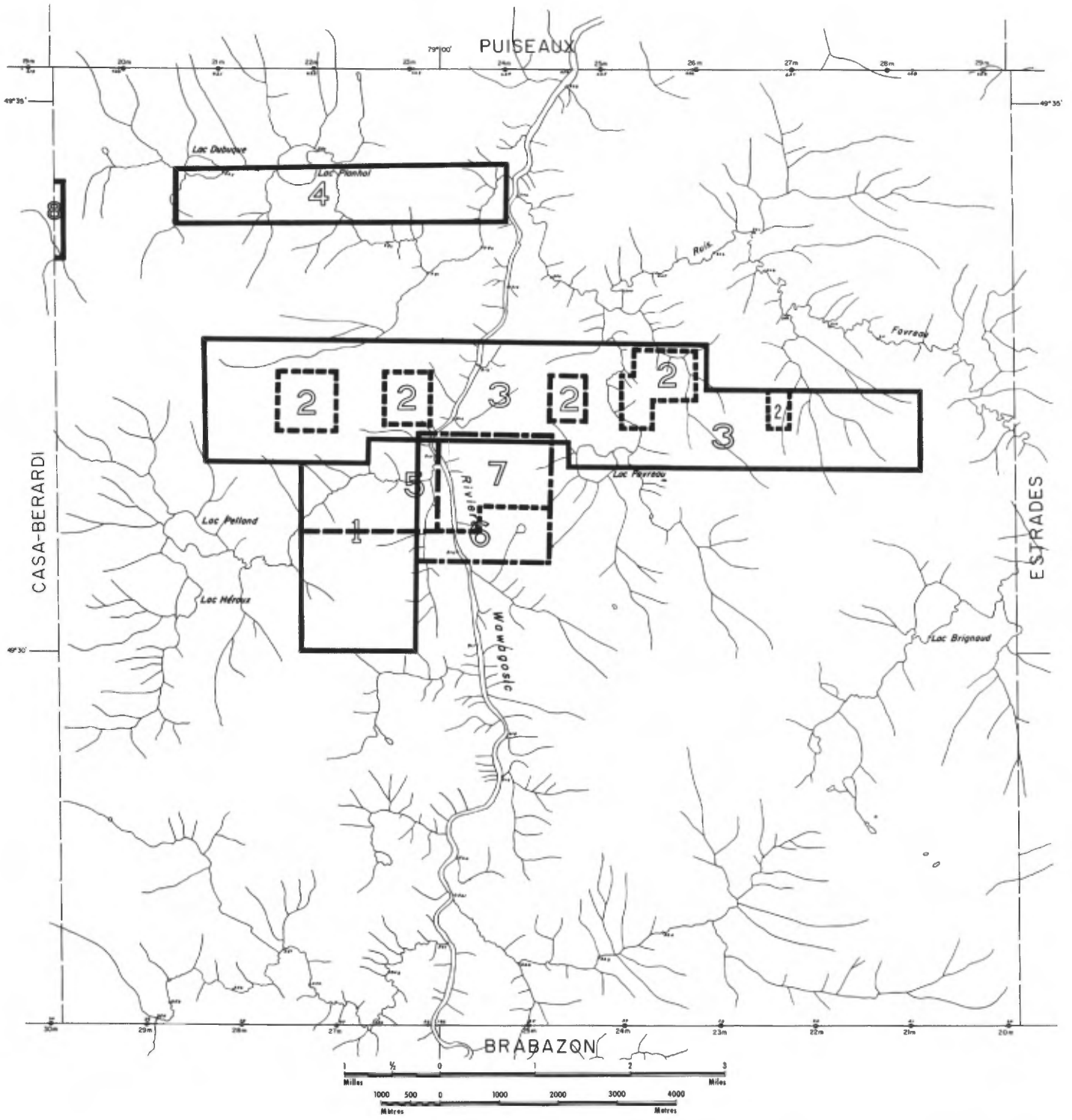


PROVINCE DE QUÉBEC

MINISTÈRE DES
RICHESSES NATURELLES

ESTRÉES

COMTÉ D'ABITIBI-OUEST



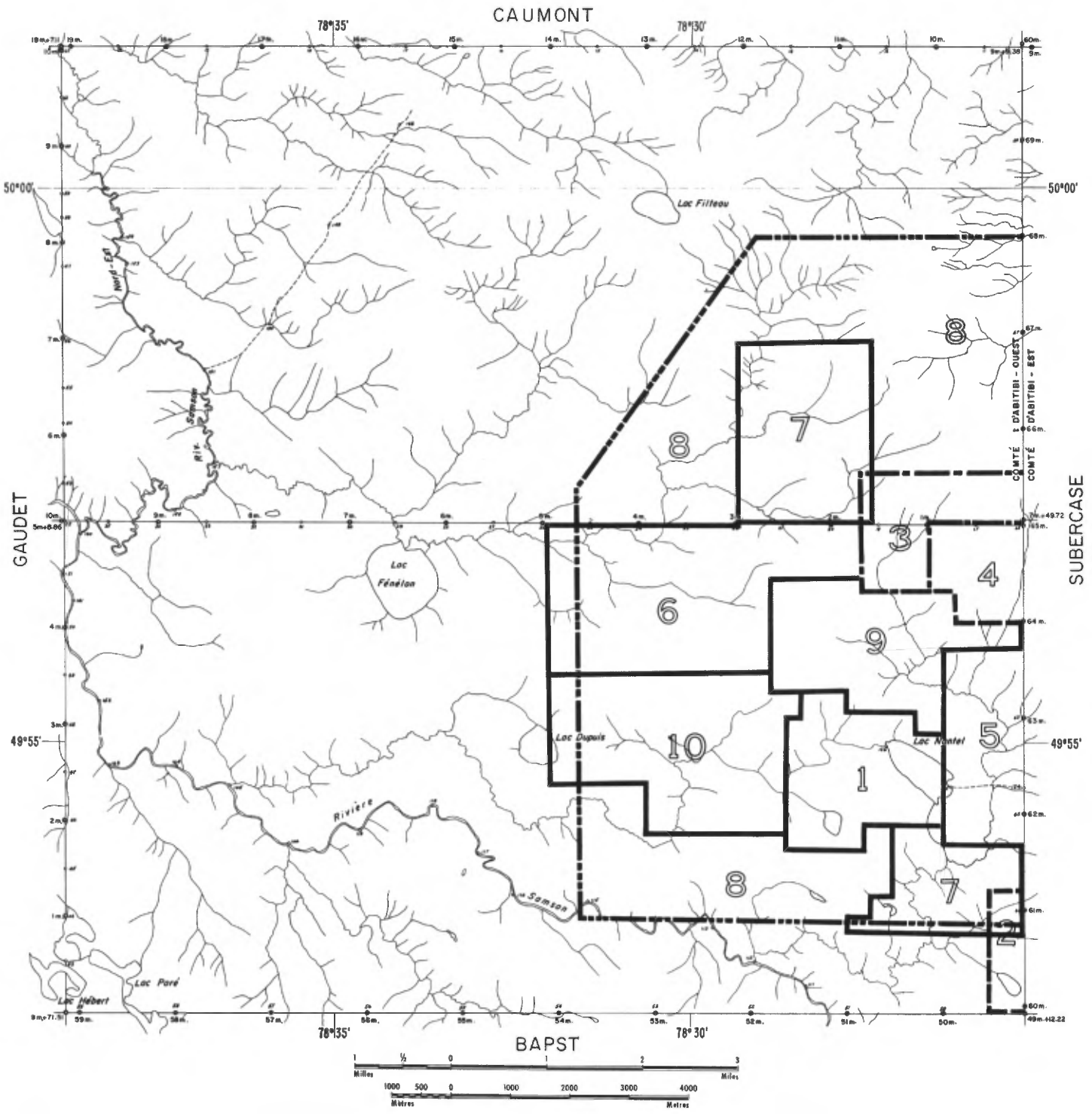
PROVINCE DE QUÉBEC

MINISTÈRE DES

RICHESSES NATURELLES

FÉNELON

COMTÉ D'ABITIBI - OUEST



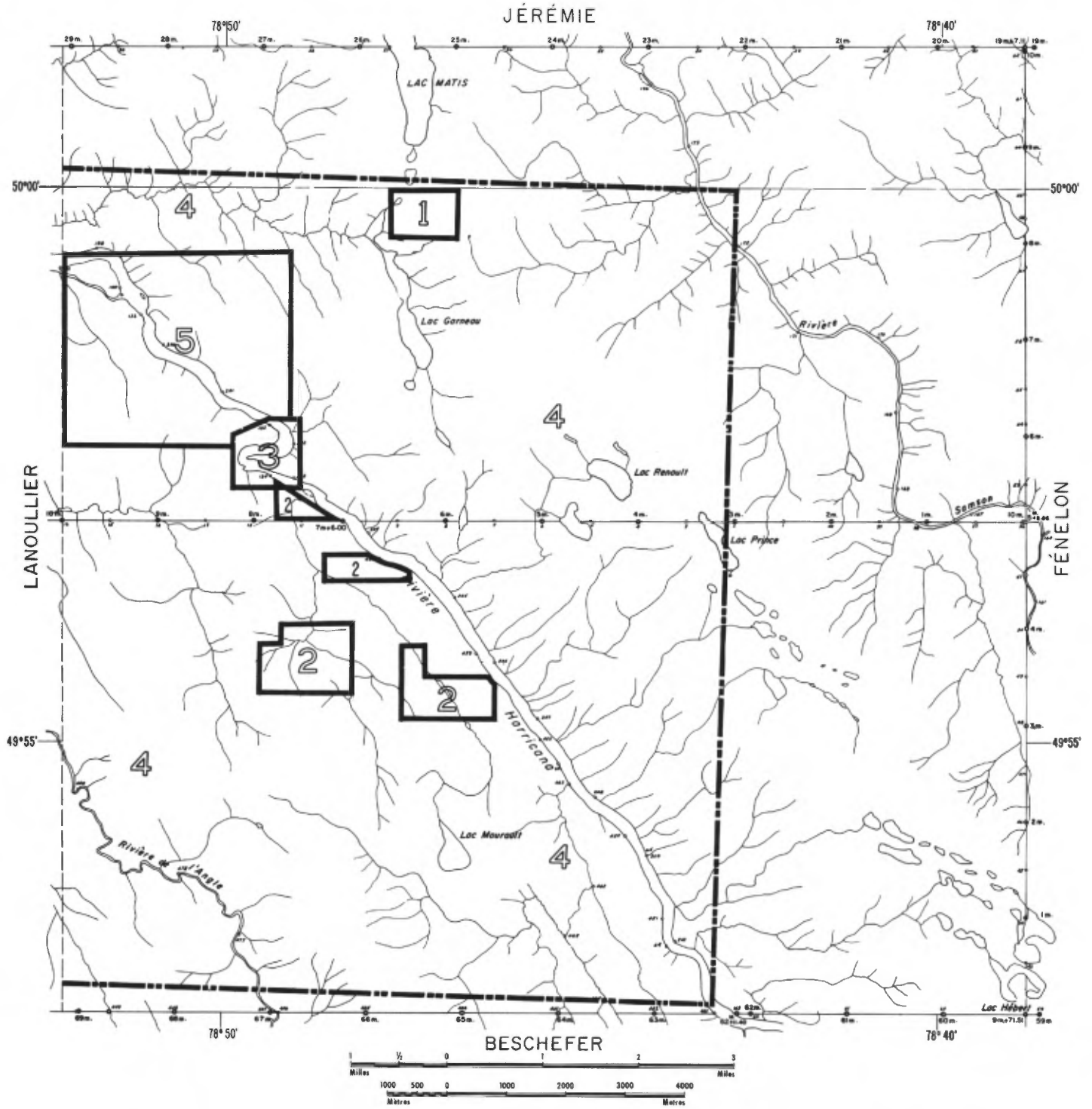
PROVINCE DE QUÉBEC

MINISTÈRE DES

RICHESSES NATURELLES

GAUDET

COMTÉ D'ABITIBI-OUEST



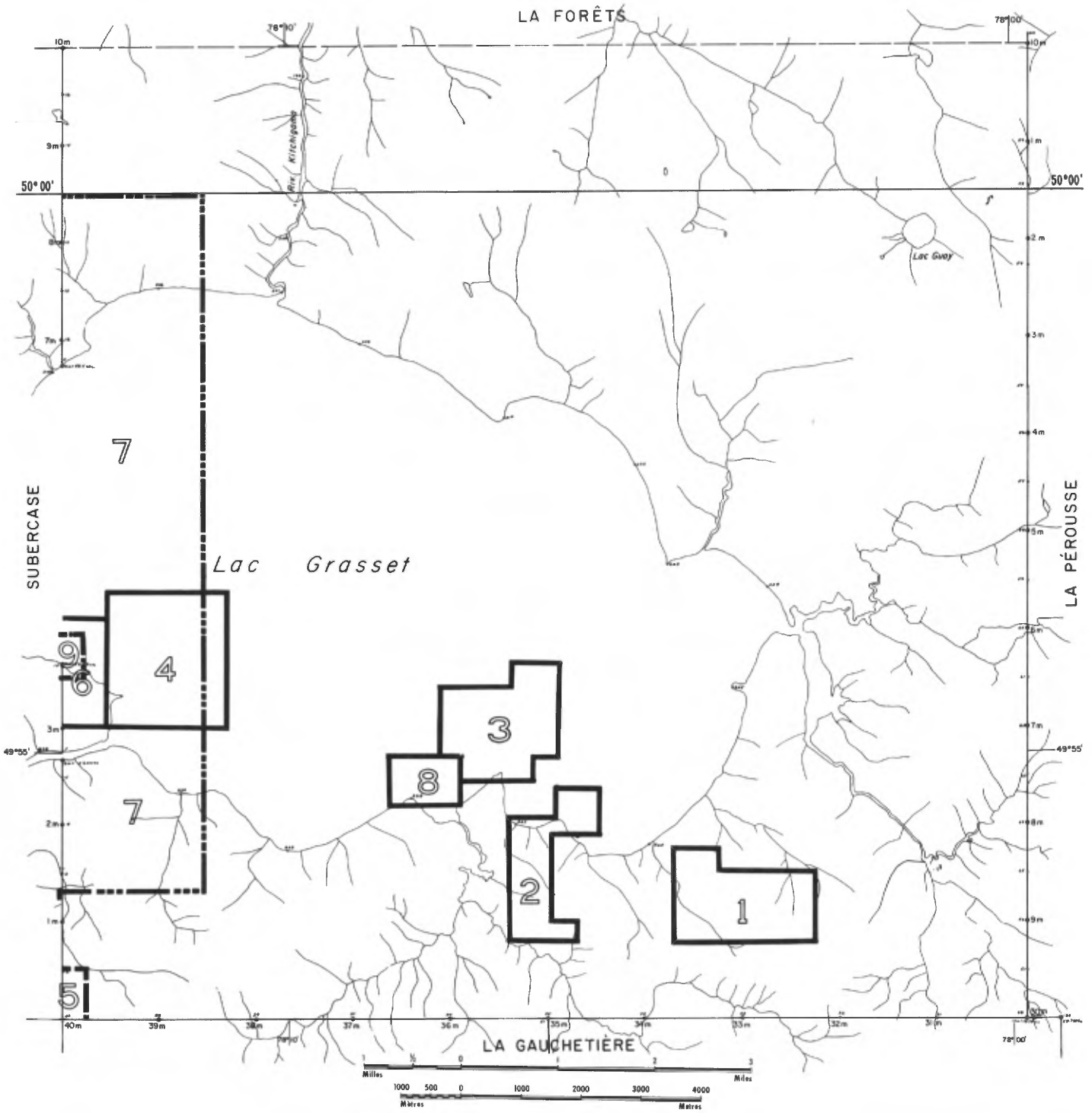
GRASSET

PROVINCE DE QUÉBEC

MINISTÈRE DES

RICHESSES NATURELLES

COMTÉ D'ABITIBI-EST



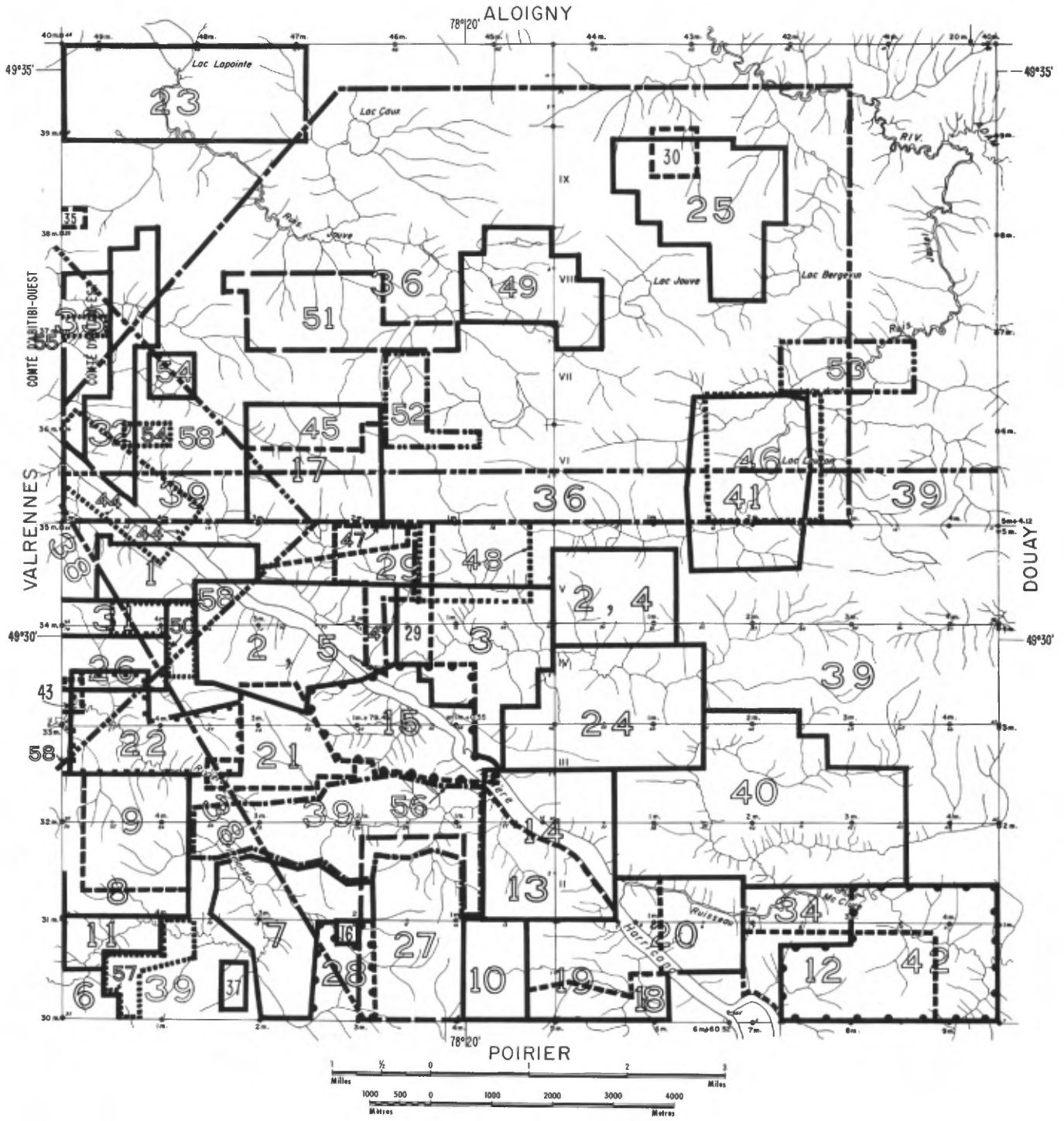
PROVINCE DE QUÉBEC

MINISTÈRE DES

RICHESSES NATURELLES

JOUTEL

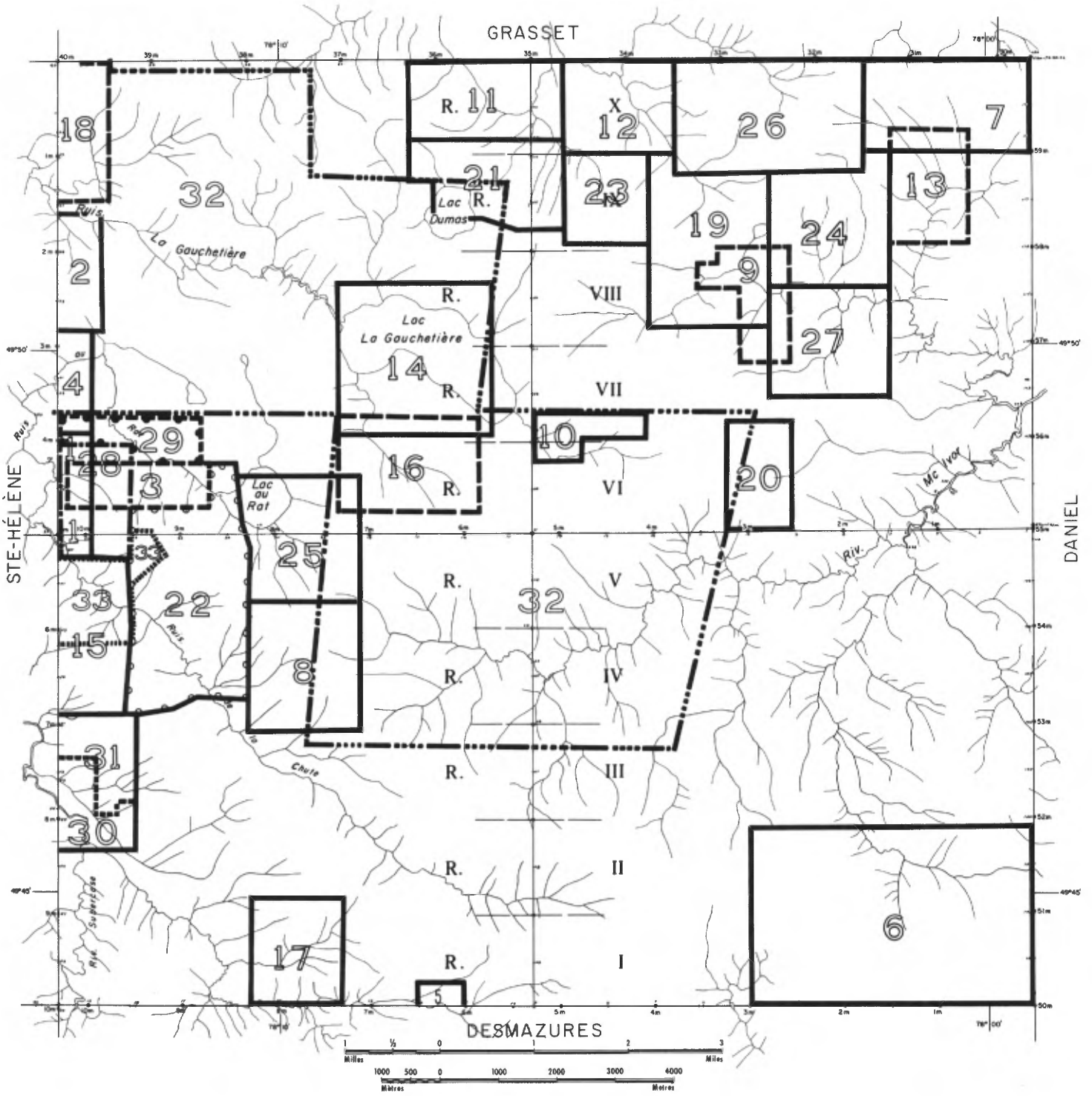
COMTÉ D'ABITIBI-EST



PROVINCE DE QUÉBEC
MINISTÈRE DES
RICHESSES NATURELLES

LA GAUCHETIÈRE

COMTÉ D'ABITIBI-EST



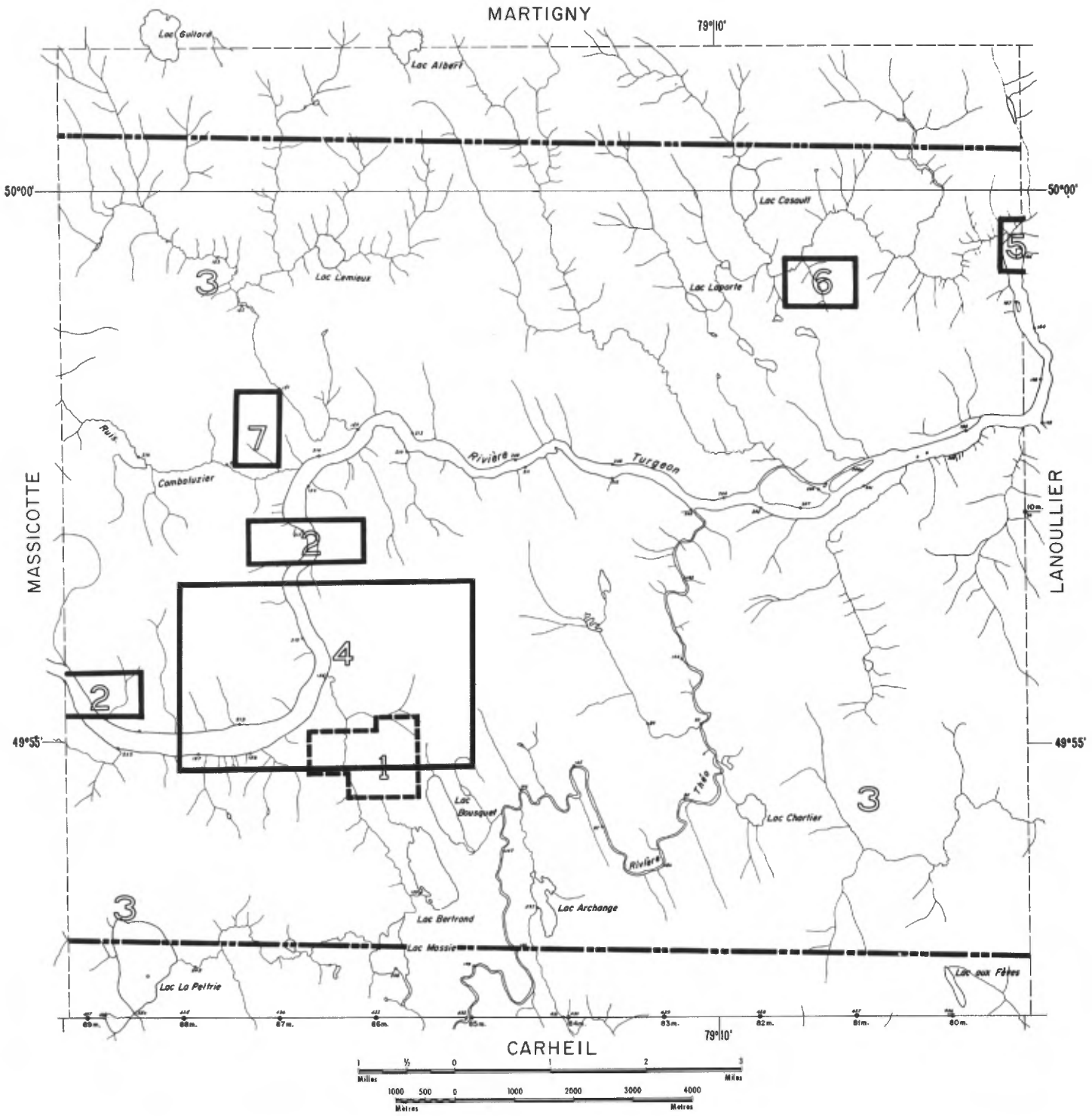
PROVINCE DE QUÉBEC

MINISTÈRE DES

RICHESSES NATURELLES

LA PELTRIE

COMTÉ D'ABITIBI-OUEST



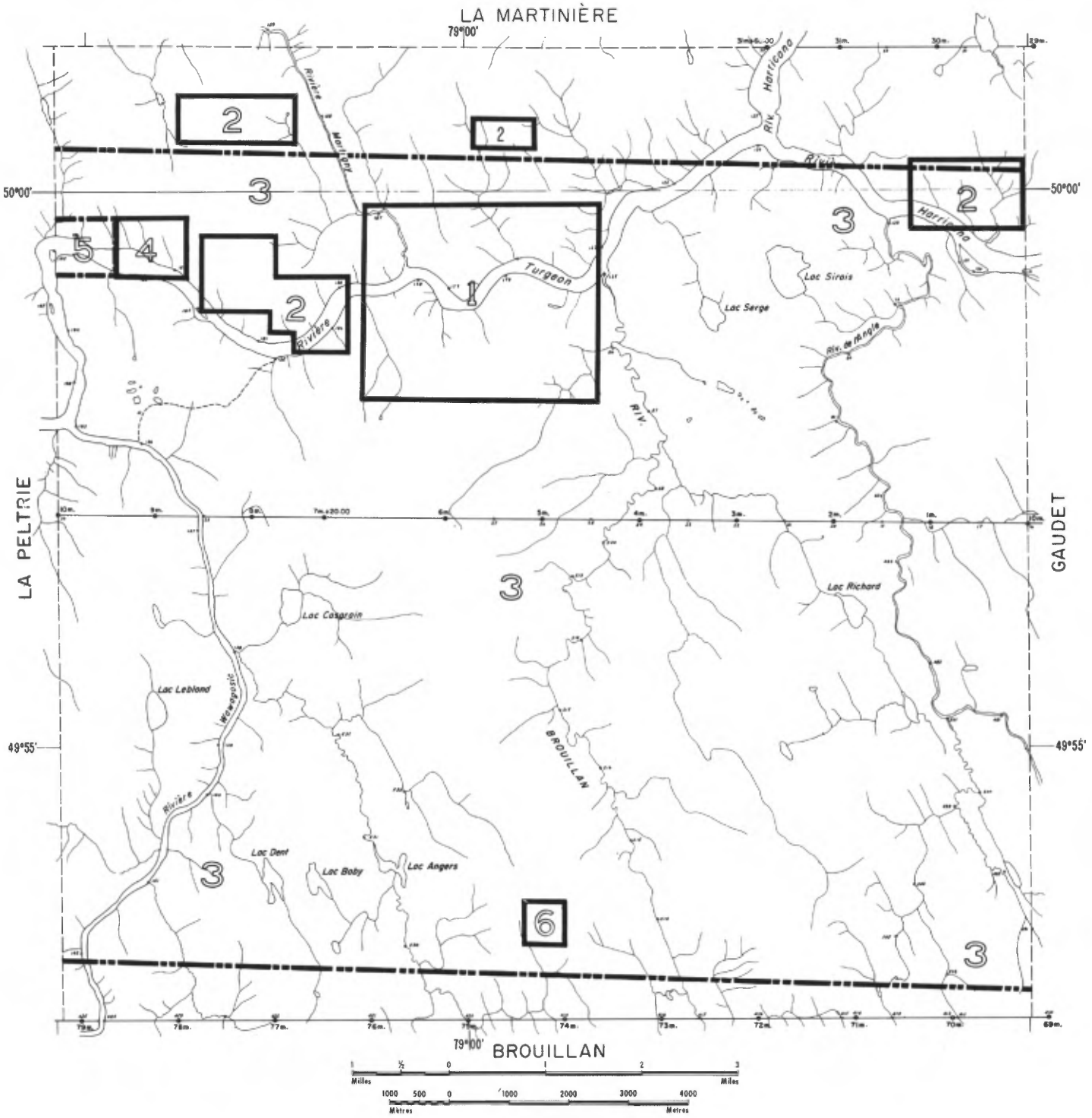
PROVINCE DE QUÉBEC

MINISTÈRE DES

RICHESSES NATURELLES

LANOULLIER

COMTÉ D'ABITIBI-OUEST



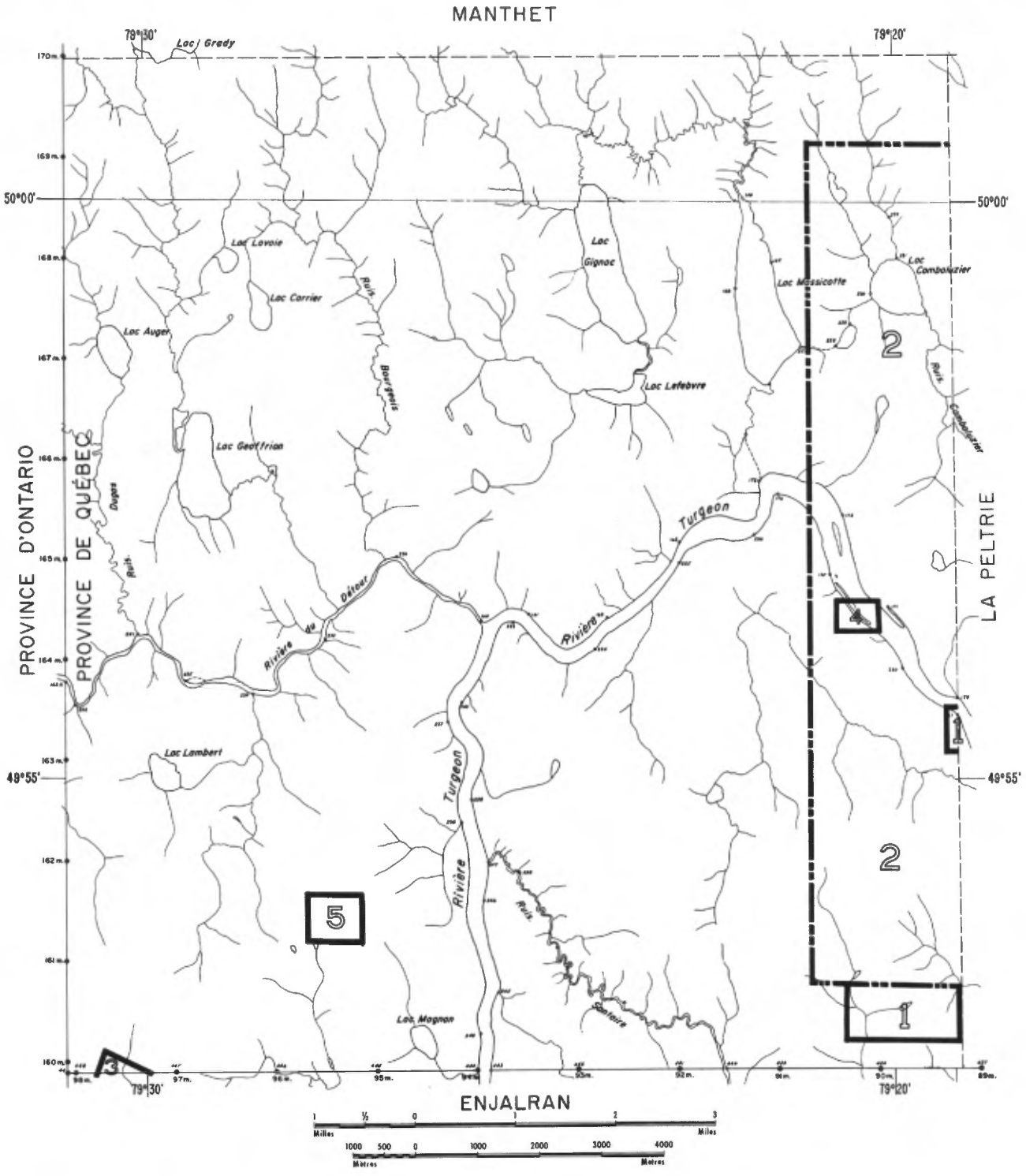
PROVINCE DE QUÉBEC

MINISTÈRE DES

RICHESSES NATURELLES

MASSICOTTE

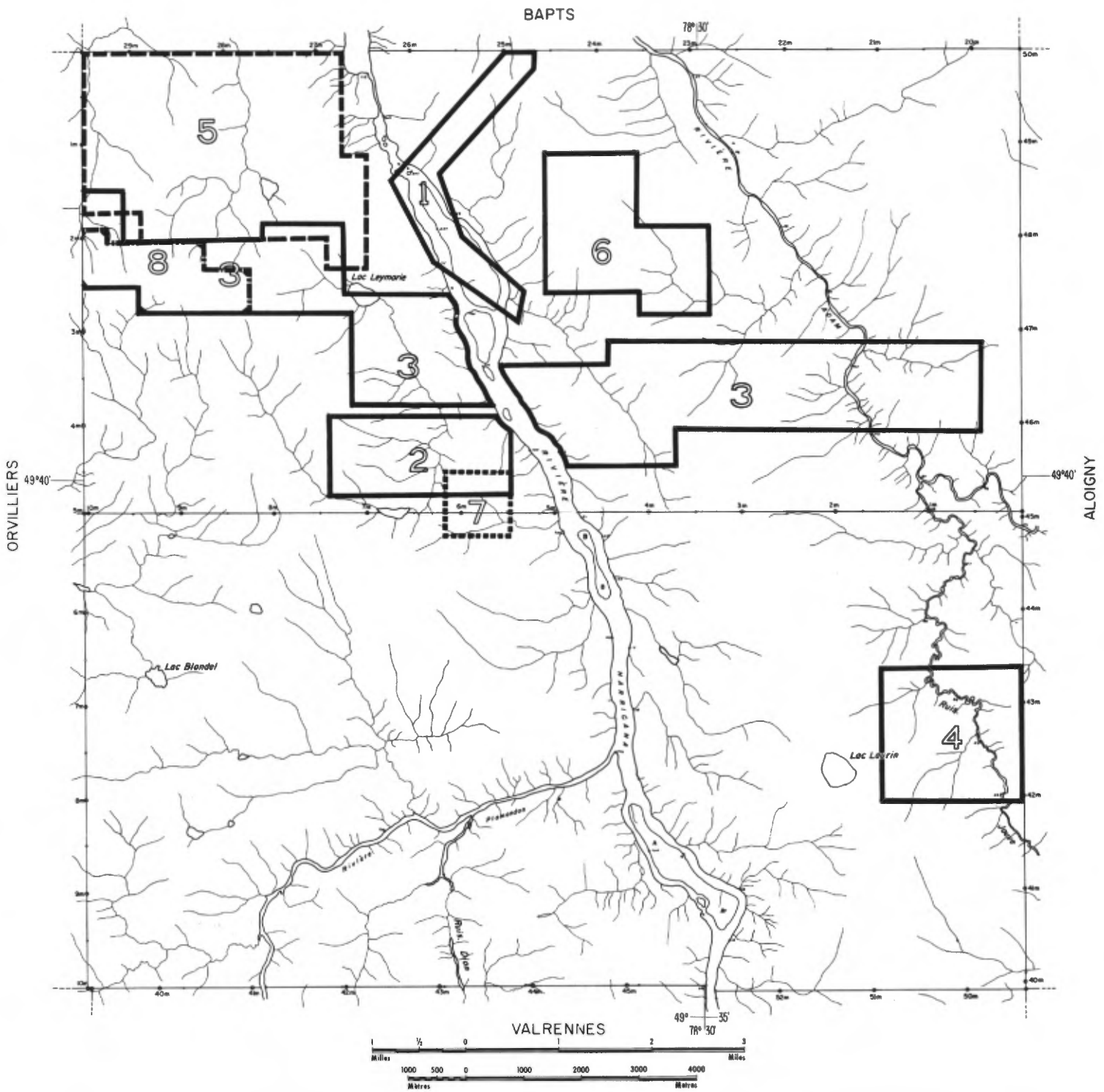
COMTÉ D'ABITIBI-OUEST



PROVINCE DE QUÉBEC
MINISTÈRE DES
RICHESSES NATURELLES

MONTGOLFIER

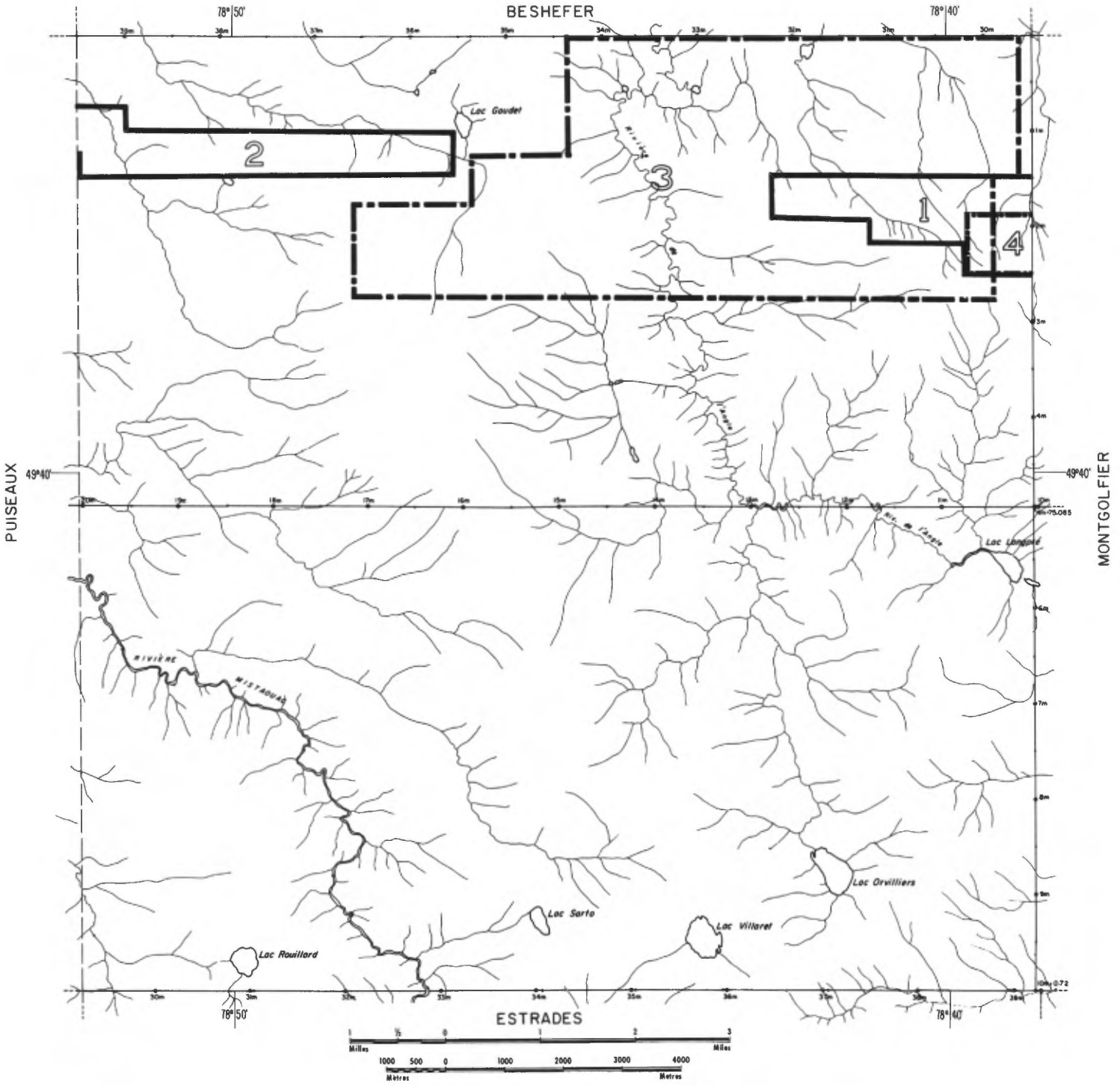
COMTÉ D ABITIBI–OUEST



PROVINCE DE QUÉBEC
MINISTÈRE DES
RICHESSES NATURELLES

ORVILLIERS

COMTÉ D'ABITIBI–OUEST



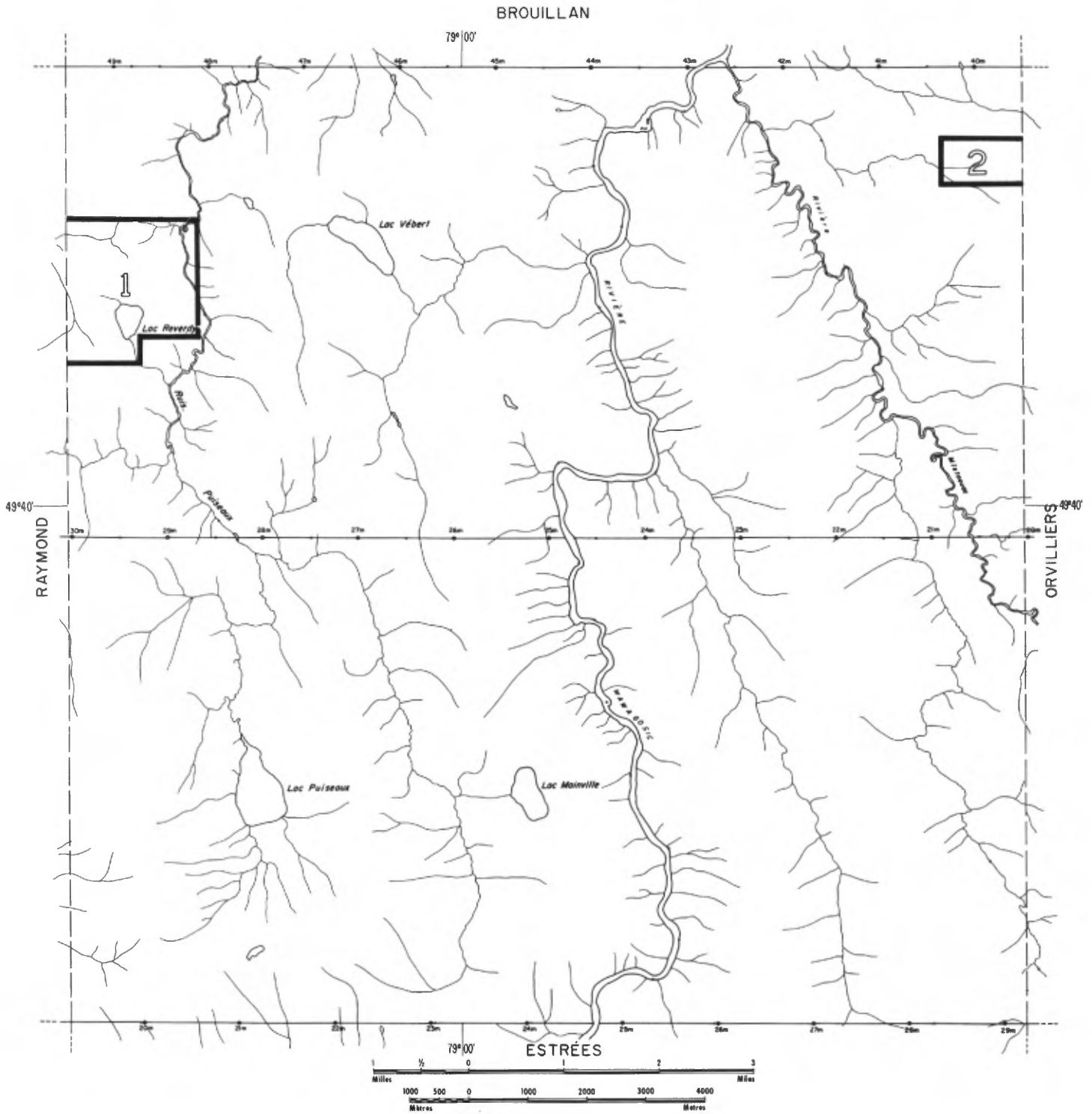
PROVINCE DE QUÉBEC

MINISTÈRE DES

RICHESSES NATURELLES

PUISEAUX

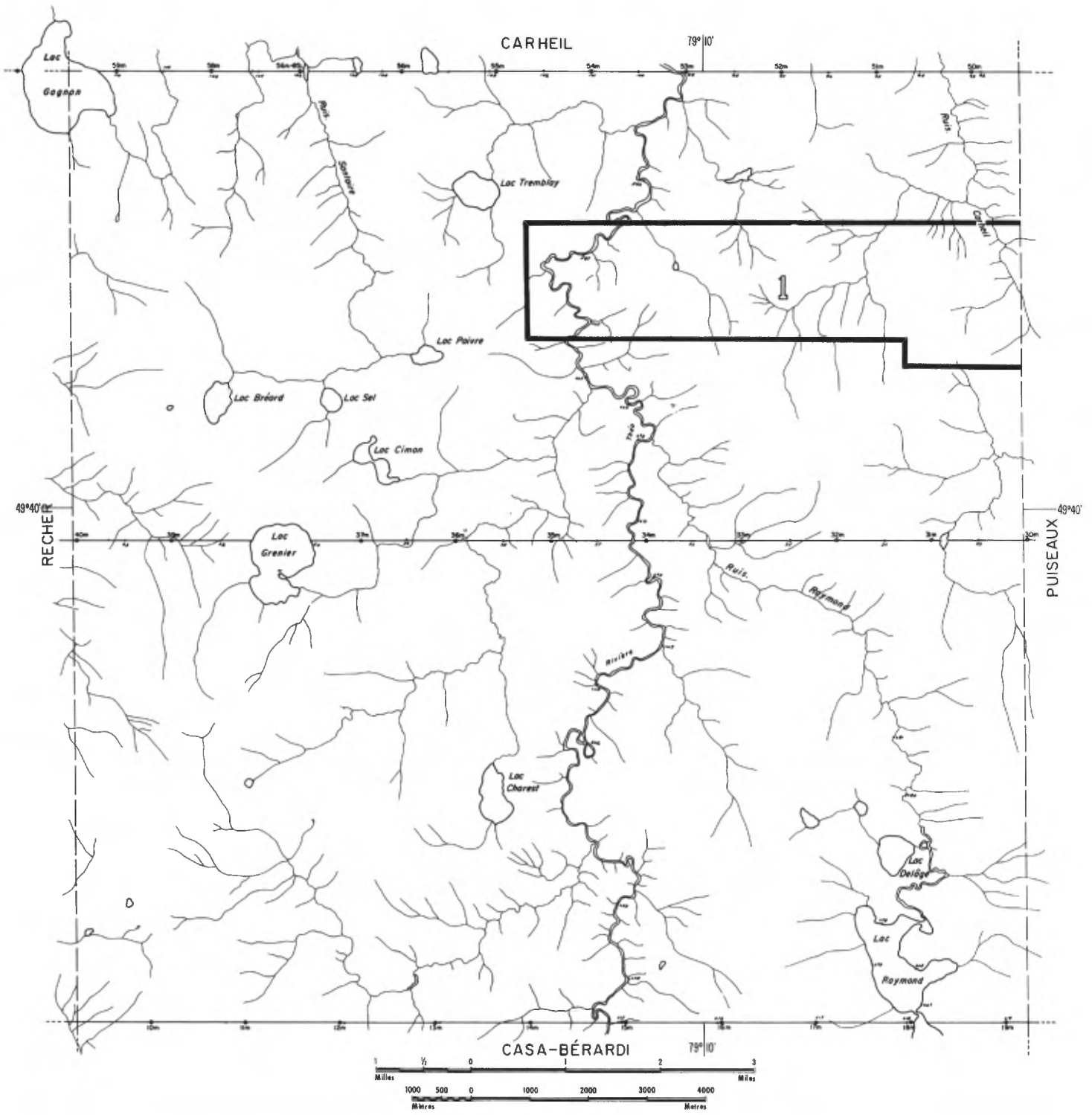
COMTÉ D'ABITIBI—OUEST



PROVINCE DE QUÉBEC
MINISTÈRE DES
RICHESSES NATURELLES

RAYMOND

COMTÉ D'ABITIBI-OUEST



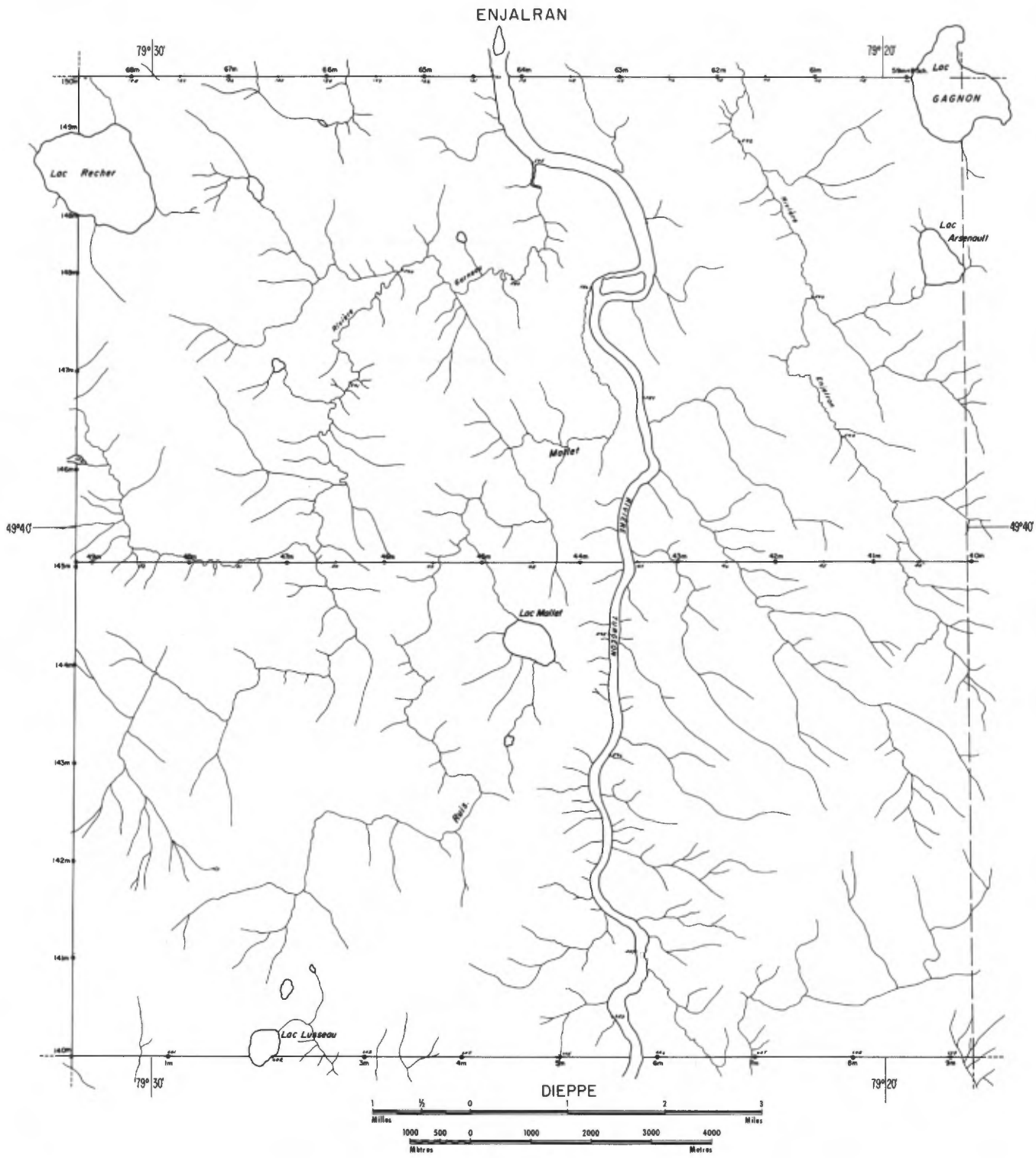
PROVINCE DE QUÉBEC

MINISTÈRE DES

RICHESSES NATURELLES

RECHER

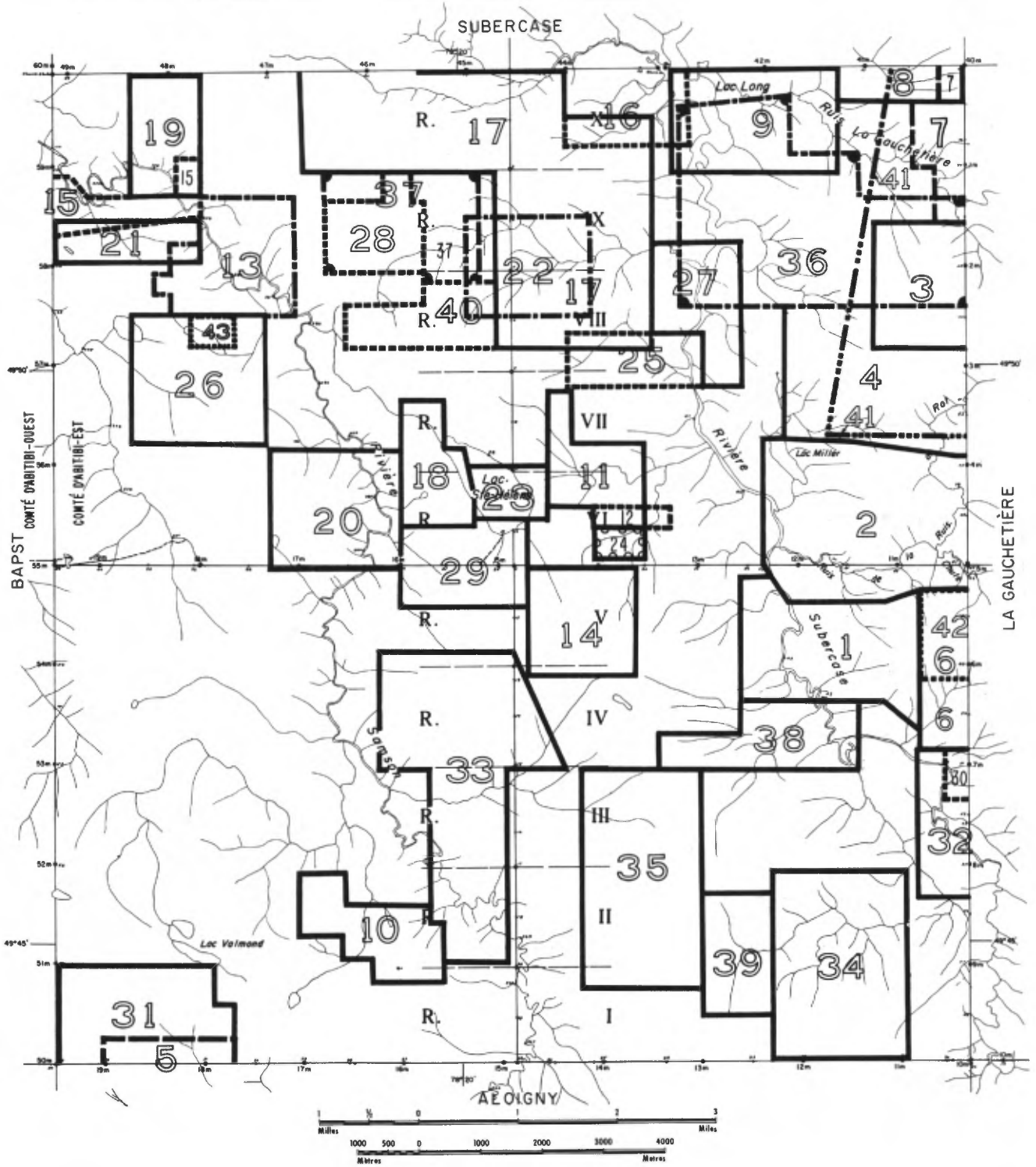
COMTÉ D'ABITIBI-OUEST



PROVINCE DE QUÉBEC
MINISTÈRE DES
RICHESSES NATURELLES

STE-HÉLÈNE

COMTÉ D'ABITIBI-EST



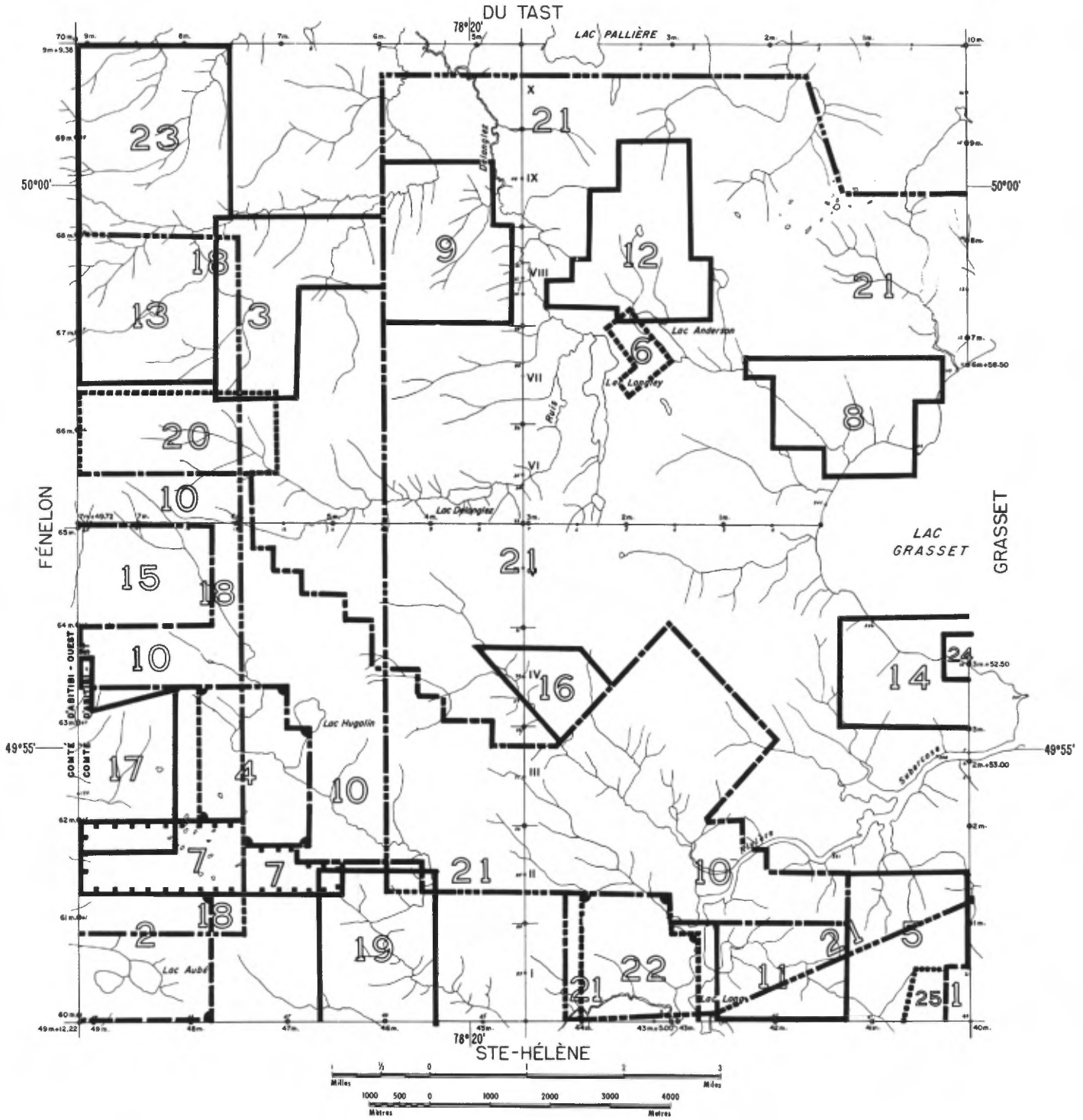
PROVINCE DE QUÉBEC

MINISTÈRE DES

RICHESSES NATURELLES

SUBERCASE

COMTÉ D'ABITIBI - EST

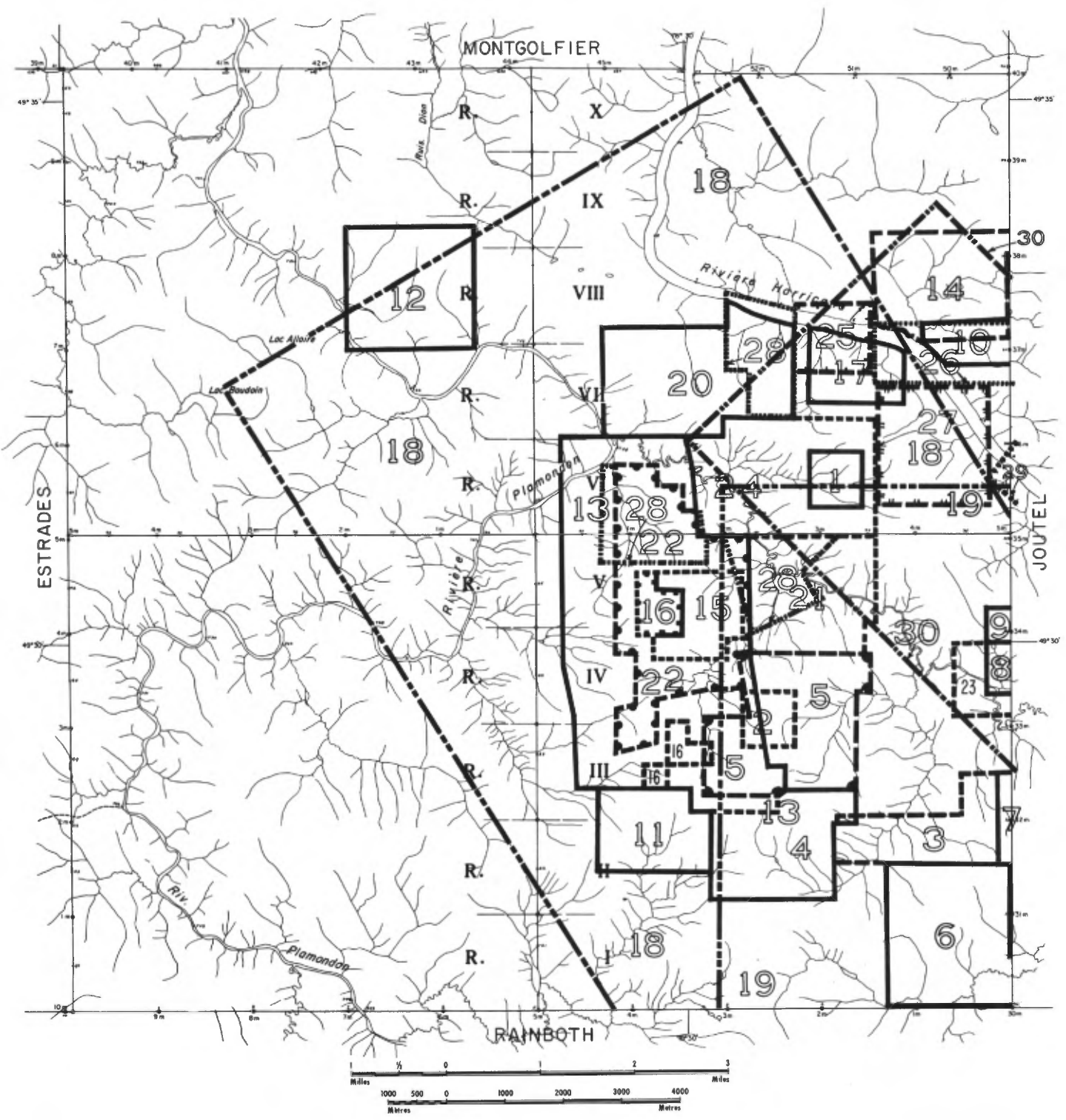


PROVINCE DE QUÉBEC

MINISTÈRE DES
RICHESSES NATURELLES

VALRENNES

COMTÉ D'ABITIBI-OUEST



ADDENDA

The purpose of this supplement is to list the data received, between September 1, 1966, and January 15, 1968, by the Quebec Department of Natural Resources. The Department's GM-file numbers in parentheses signify that such documents are confidential, and hence are not immediately available to the public. However, most of these documents will be at the disposition of the public within the next few years. Because rock outcrop is not abundant in the map-area, it is essential that companies working in the area have access to all available geophysical, geological, and diamond drill data.

DIAMOND DRILL LOGS

Brouillan Township

Penarroya Canada Ltd. (GM-20749) 1967

Hole 2 on claim 258041-2
N.45°E. Dip 51°
0'-29' overburden 29'-799' tuff, andesite, and quartzite.

Carheil Township

Noranda Exploration Co. Ltd. (GM-20483) 1966

Hole HC-1 on claim 253756-3
Vertical
0'-24' overburden. 24'-62' porphyritic metarhyolite.

Hole HC-2 on claim 253756-3
N.60°E. Dip 60°
0'-44' overburden. 44'-108' tuff and porphyritic metarhyolite.

Desmazures Township

ADA Exploration Ltd. (GM-18055) 1966

Hole 66-1 on claim 228002-4
North Dip 45°
0'-175' boulder clay with many boulders.

Hole 66-2 on claim 228002-3
Vertical
0'-190' boulder clay with many boulders.

Hole 66-3 on claim 228002-2
Vertical
0'-100' boulder clay. 100'-636' andesite.

Enjalran Township

Rio Tinto Canadian Exploration Ltd. GM-19242 1966

Hole BG-2 on claim 250153-1
North. Dip 50°
0'-87' gravel, sand, and boulders.

Hole BG-2A on claim 250153-1
North. Dip 50°
0'-60' gravel, sand, and boulders.

Joutel Township

Eagle Gold Mines Ltd. (GM-20751) 1967

Hole 1 on claim 207391-1
S.25°W. Dip 55°
0'-629.2' andesite, diorite, and graphite schist.

Lanoullier Township

Penarroya Canada Ltd. (GM-20488) 1967

Hole 3 on claim 253926-2
South. Dip 45°
0'-80' overburden. 80'-685' andesite and tuff.

Hole 4 on claim 253940-4
South. Dip 45°
0'-98' overburden. 98'-781' tuff, quartzite, and diorite.

La Peltrie Township

Penarroya Canada Ltd. (GM-20482) 1966

Hole 1 on claim 257404-1
North. Dip 45°
0'-200' overburden. 200'-800' andesite, tuff, and rhyolite.

GEOPHYSICAL MAPS

Aloigny Township

Grasset Lake Mines Ltd. (GM-21052) 1967
Location: South central part of township.
1 mag map at 200' to 1"

Brouillan Township

Mattagami Lake Mines Ltd. (GM-20759) 1967
Location: Northwest corner of township.
8 EM maps at 200' to 1"
8 mag. maps at 200' to 1"
1 compilation map at 800' to 1"
2 location maps at 1/2 mile to 1"
1 location map at 30 miles to 1"

Penarroya Canada Ltée (GM-20750) 1967
Location: Central part of township.
1 mag. map at 200' to 1 cm.
2 location maps at 1/2 mile to 1"

Carheil Township

Noranda Exploration Co. Ltd. (GM-20489) 1967
Location: East side of township just north of east-west center line.
1 EM map at 400' to 1"
1 mag. map at 400' to 1"

Mattagami Lake Mines Ltd. (GM-20759) 1967
Location: Northeast corner of township.
Data: filed under Brouillan township.

Penarroya Canada Ltée. (GM-20750) 1967
Location: Northeast corner of township.
Data: filed under Brouillan township.

Penarroya Canada Ltée. (GM-20501) 1967
Location: Northeast part of township.
Data: filed under La Peltrie township.

Penarroya Canada Ltée. (GM-20500) 1967
Location: Northeast part of township.
Data: filed under La Peltrie township.

Dieppe Township

Rio Tinto Canadian Exploration Ltd. (GM-19251) 1966
Location: Northeast corner of Dieppe Township.
Conductors 17, 18, and 19 each have one EM map, one mag. map, and one gravity map at 200' to 1". Maps of other conductors adjoining in Ontario are given.

Enjalran Township

Rio Tinto Canadian Exploration Ltd. (GM-17804) 1966
Location: Northern part of township at interprovincial boundary.
1 mag map at 200' to 1"
1 EM map at 200' to 1"
1 gravity map at 200' to 1"

Joutel Township

Equity Exploration Ltd. (GM-20150) 1967
Location: On east shore of Harricana river in Range VI just north of range V.
1 EM map at 200' to 1"

Lanoullier Township

Penarroya Canada Ltée. (GM-20486) 1967
Location: North part of township.
1 EM map at 200' to 1"

Penarroya Canada Ltée (GM-20487) 1967
Location: Central part of township.
4 mag maps at 400' to 1"

Penarroya Canada Ltée (GM-20501) 1967
Location: West central part of township.
Data: filed under La Peltrie township.

La Peltrie Township

Penarroya Canada Ltée (GM-20501) 1967
Location: South part of township.
6 gravity maps at 200' to 1 cm.
2 gravity maps at 1/2 mile to 1"
1 location map at 1/2 mile to 1"

Penarroya Canada Ltée (GM-20500) 1967
Location: South part of township.
2 mag. maps at 200' to 1 cm.

Mattagami Lake Mines Ltd. (GM-20759) 1967
Location: Southeast corner of township.
Data: filed under Brouillan township.

GEOLOGICAL MAPS

Brouillan Township

Penarroya Canada Ltée (GM-20751) 1967
Location: Most of township
Geological map at 1 mile to 1 inch and geological report.

Carheil Township

Penarroya Canada Ltée (GM-20751) 1967
Location: Northern part of township
Data: filed under Brouillan township.

Noranda Exploration Co. (GM-20480) 1966
Location: Just south of Wawagosic river.
Location map at 1/2 mile to 1" showing trenches.

Gaudet Township

Penarroya Canada Ltée (GM-20751) 1967
Location: West central part of township.
Data: filed under Brouillan township.

Lanoullier Township

Penarroya Canada Ltée (GM-20751) 1967
Location: Most of township
Data: filed under Brouillan township.

La Peltrie Township

Penarroya Canada Ltée (GM-20751) 1967
Location: Most of township
Data: filed under Brouillan township.

Massicotte Township

Penarroya Canada Ltée (GM-20751) 1967
Location: West central part of township.
Data: filed under Brouillan township.

AEROMAGNETIC MAPS

Aeromagnetic maps at a scale of one mile to the inch, available from the Department of Natural Resources, Parliament Buildings, Quebec, P.Q. for 25 cents each, cover the entire map area and correspond to the geological maps as follows:

Geological map	Aeromagnetic map
1354	5349G
1355	5357G
1356	523G and 5357G
1357	5348G
1358	5356G
1359	522G and 5356G