GM 40389

COMPILATION OLD CANDEGO PROPERTY

Documents complémentaires

Additional Files

Licence

License

Énergie et Ressources naturelles
Québec

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COMPILATION
OLD CANDEGO PROPERTY
Gaspé, Québec

April 29, 1983

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COMPILATION

OLD CANDEGO PROPERTY

Gaspé, Québec

INTRODUCTION

The compilation study on the old Candego mining property is intended to give the reader a perspective on past exploration with the view of focussing exploration on parts of the property of maximum interest for prospecting.

All of the available documentation such as old geological reports, internal correspondence of the companies that held the property and related to mining subjects, have been reviewed.

The data base was expanded beyond the material available at the time of the C. Salamis Report (report on the property of M.W. Resources - Aquilon Resources Option - Jan. 10/83). This was possible by virtue of access to the Higginson private files purchased recently by M.W. Resources. Although much of the new material is redundant, both intrinsically and by virtue of the Salamis Report, it does give a historical perspective, particularly of the operating phase of the mine.

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Quite a few documents, including maps along with a few odd reports, are not available. This is understandable, given the long history of exploration and development on the property.

In 1945, Candego Mines commenced drilling on a mineralized zone and in the following year outlined a small rich orebody. In the years that followed, a mining operation, the first in Gaspé, was initiated.

Unfortunately, due to financial problems, the mine was forced to shut down its operations in 1954.

A total of 68,495 tons of high grade ore were treated in the mill.

The average grade of the ore milled was as follows:

Pb : 6.35 %

Zn : 4.28 %

Ag : 5.19 oz/t (with the lead)

Au : 0.02 oz/t (not recovered)

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No other serious attempt has been made to re-open the mine.

Most of the ground in the area of the mine was little prospected, even if some mineralization is known to occur in a number of places.

No modern geophysical and geochemical technique has been used on a full scale over the property now held under an option agreement by M.W. Resources Inc.

PROPERTY

The property is situated in Boisbuisson and Christie Townships, Gaspé Québec, and consists of 138 contiguous claims plus one special permit.

Licence #	Claims #	Township	Expiry Date D M Y
380049	1 to 5	Boisbuisson	16-03-83
366195	1 to 3	"	17-03-83
370392	1 to 5	"	17-03-83
371589	1 to 2	"	29-03-83
370393	1 to 5	"	08-04-83
380050	1 to 5	"	08-04-83
380546	1	"	15-04-83
380543	1 to 5	"	15-04-83
381087	1 to 5	Christie	21-06-83
381088	1 to 5	Boisbuisson	22-06-83
381089	1 to 5	"	23-06-83
383403	1 to 5	Christie	24-06-83
372624	1 to 5	Boisbuisson	26-06-83
380574	1 to 5	"	17-07-83
380575	1 to 5	"	18-07-83

(cont'd on next page)

Licence #	Claims #	Township	Expiry Date D M Y
383212	1 to 5	Boisbuisson	19-07-83
383213	1 to 5	"	20-07-83
383214	1 to 5	"	22-07-83
383207	1 to 5	"	13-08-83
383208	1 to 5	"	14-08-83
383209	1 to 5	"	15-08-83
384851	1 to 5	"	21-11-82
386809	1	"	22-11-82
Special Permit	142	"	04-07-83
390466	1 to 5	"	04-08-83
390467	1 to 5	"	05-08-83
390468	1 to 5	"	06-08-83
390469	1 to 5	"	07-08-83
408219	1 to 5	"	05-03-84
408220	1 to 5	"	06-03-84
408221	1 to 5	"	08-03-84
408222	1 to 3	"	09-03-84

All these claims and the Special Permit are held by Aquilon Resources Inc. for a total surface of 5,598 acres or 2239.2 hectares.

LOCATION, ACCESS AND INFRASTRUCTURE

A) Location

The property is situated 13 miles south of the village of Marsoui on the south shore of the St. Lawrence River. The latter is 77 miles east of Matane and 480 miles east of Montreal, along the St. Lawrence River.

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B) Access

The property is easily accessible by a good gravel road that passes in its central part along the Marsoui River. This road is kept open the year round. The main road from Matane to Marsoui is paved and considered to be first class. The gravel road that runs across the property links Marsoui to the Trans-Gaspé Highway. More recently, in Fall 1982, the Government of Quebec financed two bushroads (penetration roads) into the property. One leads to the southeastern part, thus giving easier access to the Cromar vein, while the other, traverses the slope of the old mine and ultimately follows Henley Creek.

C) Infrastructure

Electricity can easily be obtained from the main power line that passes some three miles south of the property.

Water is plentiful within the property limits and the main source is the Marsoui River.

Manpower for all kinds of exploration and mining activities can be found locally since the property is located in a mining district.

The nearest railhead is at Matane. From there the main line connects to Montreal and the Maritimes.

The property is located six km northwest of Madeleine Mines where a mill exists, and about 64 km west of Murdochville where Gaspé Copper (Noranda) operates an integrated mine-mill-smelter complex.

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With regard to deep water freight transportation, we should mention the docking facilities which are present at Marsoui and at Mont-Louis.

HISTORY AND PREVIOUS WORKINGS

This area in Gaspé has been prospected on a sporadic basis since the beginning of the century. In 1916, the first mineralized showings on the shore of Marsoui River were found in the neighborhood of the Candego property. Later on, in the early thirties, gold and silver were discovered in association with lead and zinc. In 1932, Jones, on behalf of the government of Quebec, visited these prospects and in 1933, mapped the geological formations of the area.

In 1935, Stewart Troop, a mining engineer who was then practising in northwestern Quebec and who was to become the managing director of Candego Mines, went to visit the Côté silver-lead-zinc property located in Christie and Boisbuisson Townships along the Marsoui River. Arthur Côté held the property from 1931 and through prospecting in the following years, indicated the potential of the property for economic mineralization. Several efforts were made to finance exploration at that time but were to no avail. A few pits were excavated along with a number of trenches. One of the pits reached a depth of 30 to 35 feet and disclosed good mineralization (galena, sphalerite, chalcopyrite, bornite and pyrite). Channel sampling of the bottom of the pit yielded the following assays:

- Au : 0.11 oz/t
- Ag : 28.80 oz/t
- Pb : 26.15 %
- Cu : 1.32 %

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In 1936, John de Mille, a consulting geologist of Montreal, wrote a report on a mining property held by Christie Mining Syndicate Inc., and which was located in Christie and Boisbuisson Townships.

At that time, W. Kerwin, a prospector, was prospecting in the area south of Marsoui and had sunk a shaft in Boisbuisson Township and a short tunnel on the western shore of Marsoui River. All of the old workings of Kerwin were, in 1936, part of this syndicate, and work was continuing under the supervision of this prospector. At the time of de Mille's visit (Fall 1936), the shaft vein was explored by a small shaft (Kerwin's shaft) which was 25 feet deep. De Mille also noticed that considerable oxidation had taken place and sulphides had been leached out at the location of the shaft down to 20 feet.

In 1938, Aubert de la Rüe, a geologist from the Department of Mines, visited a property east of the actual showings where similar mineralization occurs. In 1939, Cromar Development Company Limited carried out some prospecting activities on a block of claims located almost one mile southeast of Kerwin's shaft. Surface work consisting of a few pits, trenches and assays were completed on a gold-sulphide bearing quartz vein. In the same year, J. Cummings reported that the vein had a limited width and therefore a limited potential. Later, in 1940, L.G. Smith, a geologist, categorically stated that the Cromar vein was not attractive and that further prospecting was not warranted. In 1944, Troop, who gained knowledge of the area from previous assignments, visited the Cromar prospect and recommended that deep diamond drilling be done on the downward extension of the vein in order to establish its potential with certitude. He also recommended that the Henley Creek area be explored by diamond drilling.

In 1945, Candego Mines came into being. The claims of this company encompassed all those of the Christie Mining

Syndicate Inc. and all the ground between the old Candego Mines as far as the Cromar vein to the southeast. In the same year, Troop who had been appointed managing director of the company, ordered that some drilling be carried out on the east side of the Marsoui River, not too far from the Kerwin shaft, along Henley Creek where mineralized showings had been found, and on the Cromar vein. Trenching and stripping have been used in many places and a self potential survey was carried out in September of that year by Geophysical Explorations Limited of Toronto. Unfortunately, most of the observed anomalies were attributed to graphite.

In 1946, M.C. Halstead, who was the mine manager, reported to Troop that trenches on the east side of the river exposed sulphides over a width of 20 feet. These trenches were completed shortly after a few diamond drill holes had intersected a mineralized zone. Here, we should point out that the drilling was carried out in a haphazardly fashion and that little was known about the geology because of the scarcity of rock exposures. From the trenched area 5,000 tons of ore was blocked out for a total value of $200,000. Halstead suggested that a mill should be brought in to process the ore.

In the southeastern part of the property, to August 1946, 13 holes were drilled on the Cromar vein and one was in progress. Up to that moment, the average width of the vein was 0.7 feet and the gold averaged around 0.21 oz/t. The highest assay yielded 0.46 oz of gold per ton in hole #25 over a width of 1.4 feet. The maximum depth at which the vein was reached by drilling is 165 feet.

During the summer of the same year, H.W. McGerrigle visited the property and backed the Candego Mines Limited for its request to the government to have a road built to reach the property.

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In 1947, McGerrigle, a senior geologist with the Quebec Department of Mines, reported that the government, in collaboration with the company had completed eleven miles of road, connecting the mine to the Trans - Gaspé road along the Ste-Anne River. During the same year, a 30 ton-per-day pilot jig and flotation mill was erected on the mining site. During 1947, stripping and trenching of the main mineral occurrence, supplemented by diamond drilling, was carried out.

In 1948, H.M. Kingsbury, consulting geologist to the fledgling mining operation, indicated that gold is related to sulphides rather than quartz and that the mineralization occurred in vugs and fracture fillings.

Up to January 1948, 20,000 feet of diamond drilling had been completed and a wide fault zone in excess of 70 feet in width and dipping 45^{o} south had been intersected. In July of the same year, F.F. Osborne, a well known Quebec-based geologist, visited the mine and registered his disbelief concerning the presence of a major fault. He regarded the "fault" as a normal geological contact and observed the presence of major folds in the environment. Osborne noted that dolomite can be replaced by sphalerite and galena and suspected the presence of north-south transcurrent faulting.

At about the same time, a claim staking rush took place in the area as witnessed by the presence of Tabletop Mines east of Candego. Troop, in his report to Tabletop, stated that the Candego fault runs east-west and therefore passed on to their property. Marsoui Mines held ground west and southwest of Candego.

On the west side of the river, mining started in 1948 using an open cut on the flank of the hill. During the same

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period, gophering of the original discovery, east of Marsoui River, was completed. Milling of the ore started in February 1948. Typically, exploration was carried out by bulldozing a zig-zagging road up the side of the mountain (west of the river) supplemented by trenches along the way. In the same year, adits #1 and #2 were started. At the end of 1948, a shipment of concentrate to England was made.

In 1949, exploration on the west side of the river continued and other ore occurrences were identified. Mining was carried out from three different levels which were referred to as adit #2, upper open cut #3 and lower open cut #2. Development adit #3 had been started during the latter part of the year. The mill temporarily ceased operations on February 3rd, 1949. It started over again in July and stopped once more in October of the same year. During this period, Candego Mines was in trouble financially and had to postpone some development work.

In 1950, work continued at a moderate pace and good ore was being mined out of #3 adit. A lower level #4 adit was started in that year. Owing to its deteriorating financial condition, Candego Mines restructured as Consolidated Candego Mines in August 1950 when four old shares were exchanged for each new one issued. The new issuance of shares was intended for mill improvements as well as new facilities for the mining operation.

During the autumn of 1950, J.D. McCannell, a Toronto geologist, visited the property and wrote a general report in which he concluded that Consolidated Candego "should prove to be a profitable operation" on the basis of the presence of high grade ore and the geological setting. In April 1951, Kingsbury reported that all was ready to go into production

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and that prospecting was still being carried out in the area of the adits. He also observed that the best ore shoots appear to occur in the change of geological structure towards the nose of the fold where the adits were being driven. By the end of the summer, six miles of road trenching had been completed and a new ore discovery extending to the west was made 500 feet south of adit #1.

The mill operated during that year and shipments of concentrate were made.

In 1952, mining operations proceeded and Kingsbury reported in April 1952: "More ore is now being broken in the mine above #3 adit than can be treated in the present mill". He also concluded: "There is every indication that the future of Candego will be marked by steadily accelerated growth and by notably increased production". Kingsbury also reported that: "High grade lead-zinc ore with fair gold content up to 0.5 oz/t, has been opened up and mined (adit #3) continuously above and to within 40 feet of the present face. This ore, as in the original open cuts has been mined over widths in many places greater than 10 feet". During that year, adits #5 and #6 were started. Unfortunately, in the last few months of 1952, operations slowed down.

In 1952, Christie Base Metals with their property adjacent and north of the Candego carried out a geophysical survey (self-potential) by T. Koulomzine. Recommendations for further prospecting by bulldozing trenches were given in his report.

In June 1953, D. Sykes, P. Eng., was appointed mine manager. At the same time, L. Wolofsky, a geologist and a Masters Degree student, was hired to map the adits and to study the ore-bearing structure. During the year, the drifts were mapped, underground diamond drilling was completed and surface mapping was updated in places. .../

Wolofsky incorporated all the available data in his M.Sc. thesis (McGill) on the Candego deposit.

In 1954, due to continuing financial constraints, Consolidated Candego Mines Limited winded up its assets and was acquired in early 1955 by East MacDonald Mines Ltd. The property was shut down in October 1954.

From 1955 to the present, very little exploration was carried out on the property. East MacDonald carried out assessment work (trenching, diamond drilling and elementary geophysical surveys) to keep the claims in good standing. In 1957, the property was optioned to North Gaspé Mines Ltd, and nothing more was recorded. The property was ultimately turned over to the original owner in 1958.

In 1966, a small geophysical survey of the electro-magnetic EM-15 type was done over most of the property.

In 1969, Lincoln Torrance, who had acquired some rights to the property, had an airborne magnetometer and electromagnetic survey conducted over the general area of the property. No outstanding anomalies were located.

In 1980, SOQUEM carried out limited surveys consisting of a few test lines of geophysics and geochemistry. The geochemical results showed the presence of anomalies and recommendations to test them by trenching were given.

No other work of importance has been done on the property.

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GEOLOGY

A) Regional Geology

The geological formations of the Candego area belong to the northern sequence of the Cambro-Ordovician flysh series of the Quebec Supergroup. This flysh is chiefly made up of sandstones, argillaceous micro-sandstone, black slates, calcisiltite and dark gray dolomitic sandstone. In very few places, quartzose sandstone and red micro-sandstone are visible. The general strike of these geological formations is east-west. The northern sequence is typified by a rythmic alternation of different regional petrographic types and shows highly fissile surface exposures.

The property of the old Candego underwent the effects of east-west faulting.

B) Structural Geology

The sedimentary rocks of the mine area have been folded and contorted. The axes of these folds are not always conformable with the strike of the regional geological formations. In the mine, in many places, the axial plane of the fold is often horizontal or sub-horizontal. The axes of these folds plunge in different directions and don't appear to follow any definite structural pattern.

The faults are the most important structures, both from a regional standpoint and for mining exploration potential. There are several fault systems running on the Candego property. The most important fault zone along which several orebodies have been found strikes N-70^{o}-W. In reality, it is a shear zone which, in general, has a steep dip up to vertical to the north.

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Within this sheeted fault (shear zone) slickensides are found to dip in every direction from vertical to horizontal.

Cross-faulting is also present. The general strike of these faults varies between N-35°-E to N-60°-E.

The geological formations around the old mine, according to Kingsbury, are divided into two groups. The first one, lying north of the main fault zone consists in striped shales and south of it, the rocks are made up primarily of thick bedded shales with some quartzite.

According to Wolofsky (1954), the following events took place in Ordovician times.

First, crumpling of sedimentary beds by north trending compression, cuts east-west striking folds.

Second, fracturing along shear direction, first parallel to the fold axes (N-70°-W) and then across (cross-faulting) this direction (N35-60°-E).

Third, opening of some tension fractures on N-30°-W direction.

Later, in Devonian times, there was a resumption of movements on faults, probably in the same directions as before, the introduction of aplite dyke and some quartz, and the gradual deposition of the ore minerals along with some movements on the fault zone.

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ECONOMIC GEOLOGY, MINERALOGY AND ORE PETROGENESIS

The principal ore minerals are galena, a lead sulphide and sphalerite, a zinc sulphide, which are accompanied by pyrite and in places by minor amounts of chalcopyrite, a copper sulphide.

Quartz, carbonates and sericite are the main gangue minerals found with the metallic sulphides.

Also, we should mention that trace amounts of tetrahedrite, bournonite, arsenopyrite, pyrrhotite and anglesite are present.

Here, at the old Candego mine, the main attraction of the deposit is the presence of silver and, to a lesser extent, gold. Silver seems to be linked to galena, while gold, up to now, has been correlated with the presence of pyrite and chalcopyrite. In the case of silver, it is suspected that it is present in a mineral of lower density than galena or in a fine grained mineral.

In the area comprising the old Candego mine, the major fault striking east-west across the deposit, appeared first as a major shear acting at right angle across the local bedding. The shearing followed a fairly straight direction both in strike and dip. During the gradual process of shearing, the hanging wall (south) was thrust over the footwall (north) and by so doing, created large cave-like openings where irregularities along the walls existed. According to Kingsbury (1948), in most cases, the roof or back of such caves collapsed as a result either of a bad arching of the rocks or because of continued movements along the fault, thus producing angular and irregular rock fragments giving rise to open spaces or vugs. The loose material (collapse breccia) thus created was invaded by mineralizing

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solutions, bringing in silica and forming much of the quartz associated with the mineralization. The remaining open spaces have been filled by sulphide-bearing solutions containing lead (with silver) zinc and iron. The last stage of mineralization is represented by chalcopyrite that filled the remaining vugs.

Mineralization has been found in many places on the property and deserves follow-up. Most of these showings are the loci of fractures, often brecciated, filled by quartz and sulphide.

METALLURGY

According to available documentation, several mineral dressing tests have been carried out on ore from the Candego deposit. Mineralogy and flotation tests in particular were evaluated in order to determine a suitable milling process.

In 1950, the Mineral Dressing and Process Metallurgy Division of the Department of Mines in Ottawa prepared a minera-graphic and spectrographic examination of the ore. The main minerals found were: galena, chalcopyrite, pyrite, copper sulphosalts, native gold, arsenopyrite, sphalerite, tetrahedrite bournonite, quartz and carbonates. Qualitative spectrographic analysis revealed strong traces of silver in the tetrahedrite and the bournonite. It is thought at this time that silver might replace copper atoms in the crystalline structure of the two minerals which, in turn, are disseminated in the galena.

The Department of Mines concluded that the ore should easily be treated by flotation.

In 1952, sink-float tests were carried out at the Department of Mines of Quebec with inconclusive results. In the same year, at the request of the managing director of Candego,

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more advanced techniques were applied in order to investigate the eventual possibility of extracting germanium from the lead-zinc concentrate. Roughly 0.01% germanium was found in the concentrate bearing in mind the inadequacy of analytical techniques of the times. We are not aware, for the time being, of the result of those investigations.

In 1954, considerable work was done to recover a copper-gold concentrate from the treated ore. Many tests were conducted in the laboratories of the Department of Mines in Ottawa. In Spring, Troop, managing director of the Candego, reported that they had produced a copper concentrate at the mill, assaying approximately 4.0 oz/t Au, 449.5 oz/t Ag and 24% Cu. It also appears from the preliminary tests that one ton of copper concentrate can be produced from each 15 tons of lead concentrate. In the course of their attemps to produce copper concentrates, they obtained gold values as high as 8 oz per ton.

According to H.L. Gibson, the mill superintendent, the gold is probably associated with the tetrahedrite, not the pyrite. He made a pyrite concentrate and on the average, the content was about 0.25 oz per ton. The tests to produce a copper concentrate have been inconclusive and never applied on an industrial scale for the milling operations.

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DISCUSSION AND CONCLUSIONS

Because of the thick overburden concealing most of the outcrops, not enough conventional prospecting has been done on the property. On the other hand, good targets have been found and not enough prospecting done on them. Because of the financial difficulties by past owners, exploration slowed down and finally came to an abrupt halt in 1954 when the Consolidated Candego Mines shut down its operations.

Exploration has been carried out using five different means:

1) ground sluicing;
2) bulldozing;
3) diamond drilling;
4) underground excavation, and
5) open cuts.

Of all the methods, the use of the bulldozer to open new trenches proved to be the most efficient to discover new ore occurrences.

Several places on the property should be the target of conventional prospecting. The mineralized occurrences north of the old mine, the St-François Creek showings should be opened by trenches, mapped, surveyed and sampled. The same thing should apply to the showings on the east mountain, east of Marsoui River and of the tailing ponds. Conventional prospecting should also be done along Henley Creek, south of the main workings, because several mineralized showings have been reported there as well. A fault parallel to the creek is also suspected.

On the mountain where the main deposit was worked, three hundred feet southwest of adit #1, is another mineralized fracture that should be explored by way of trenches. There is

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also a major mineralized fracture filled with quartz that passes in an east-west direction and touches the northern tip of adit #6. The axis of the main east-west fault that generated most of the orebodies should be traced, and exploration undertaken along its course, both east and west.

The area lying between the Cromar vein which is located in the southeastern part of the property and the old mine has not been explored. Particular importance should be paid to this area because of the probability of the continuation of the Cromar vein (fracture) and the presence of precious and base metals.

The Cromar vein itself underwent no work at depth. This should be looked at while working in that corner of the property. Good gold values have been reported from that prospect.

According to available information, there has been no serious systematic attempt to check the downward continuation of the main ore shoots at greater depth by diamond drilling. In the course of evaluating the property and appraising the old mine, it will be essential to conduct systematic drilling in order to ascertain with precision if there is a downward continuation of the ore shoots, and evaluate the quantity and quality of the ore. Kingsbury often mentioned in his reports that in going deeper, richer ore will be encountered as we come closer to the main "trunk".

It is also recommended to re-open the adits of the old mine and resample.

An inventory of what is left in the old workings should be attempted if possible.

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Thus far, the position of many trenches which are reported have not been properly surveyed and plotted on maps. Here, it should be pointed out that many original maps have been lost. There is a conspicuous absence of good geological maps by previous owners. Diamond drilling was done, at first, in a haphazard way and the holes have been spotted in a random fashion. The core size was small (E size) and its recovery, in most instances, was not good. Although this is often the only means of getting subsurface information, drilling is not foolproof and many times results in underestimating mineralization, especially in the case of precious metals like gold. Kingsbury mentioned several times in his reports on the Candego that diamond drilling, on several occasions, is not satisfactory or conclusive enough to be used indiscriminately, "even in those areas where excellent ore has been revealed at the surface by other more effective means of exploration". However, the same geologist recommends its use in places where geological knowledge is available. Of course, we must understand that drilling equipment available at the time had a very small core diameter (X-ray) and was not the best.

In 1961, Pérusse of the Quebec government, applied a geochemical method, soil testing for heavy metals, to see if it worked in the case of the Candego deposit. The result was positive. Therefore, geochemistry, along with other prospecting tools, should be used extensively on the property.

The use of geophysics on the property has been very limited. A self-potential survey was done in 1945 and located several anomalies. Most of them were caused by graphite. An EM-15 electromagnetic survey has been conducted over a part of the

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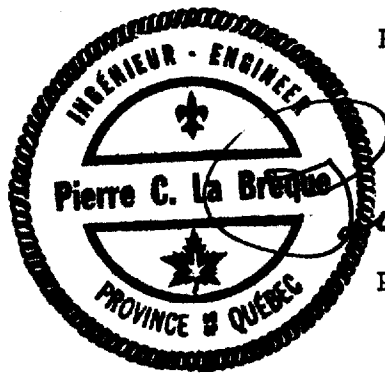
property, and outlined nothing of major importance. Because of the new capabilities of modern geophysical methods, the property should be thoroughly prospected by geophysics. Such techniques like VLF electromagnetic and magnetometer surveys, induced polarization and other types of geophysical measurements should be applied on the property as indicated in the earlier report by C. Salamis.

Respectfully submitted,



Pierre LaBrèque, P. Eng.

WORK PROPOSAL - COST ESTIMATE

M.W. Resources Inc.
Candego Project, Gaspé (Quebec)

Phase I

Recommended exploration programme for summer 1983:

1.	Line cutting : lines 94.7 km	@ $175/km	$ 16,572.50
	base lines, 9.4 km	@ $220/km	2,068.00
	Tie lines, 4.4 km	@ $175/km	770.00
		ST	19,410.50
2.	Geophysics : Magnetometer and VLF surveys		
	95 km at $240/km -		$ 22,800.00
	Induced Polarization survey		25,000.00
	Instrument rental		5,000.00
		ST	52,800.00
3.	Geochemistry : 3,800 samples		
	collecting at $10/each		$ 38,000.00
	assaying for at least Au, As, Pb, Zn, Cu & Ag, and possibly for Co, Fe, Mn & Ni;		
	$4.50 to $18.50 per sample		17,100.00 - 70,300.00
4.	Surveying (with Theodolite)		$ 6,000.00
5.	Geology		$ 15,000.00
6.	Consulting, general supervision and final report		$ 20,000.00

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Phase I (cont'd)

7.	Conventional prospecting - trenching, etc...	$ 30,000.00
8.	Room and board	$ 8,000.00
9.	Transportation (vehicle, truck rental, etc.)	$ 8,000.00
	ST	$ 214,310.00 - 267,510.00
10.	Contingencies (10%)	21,500.00 - 26,750.00
	TOTAL	$ 235,810.00 - 294,260.00

Phase II

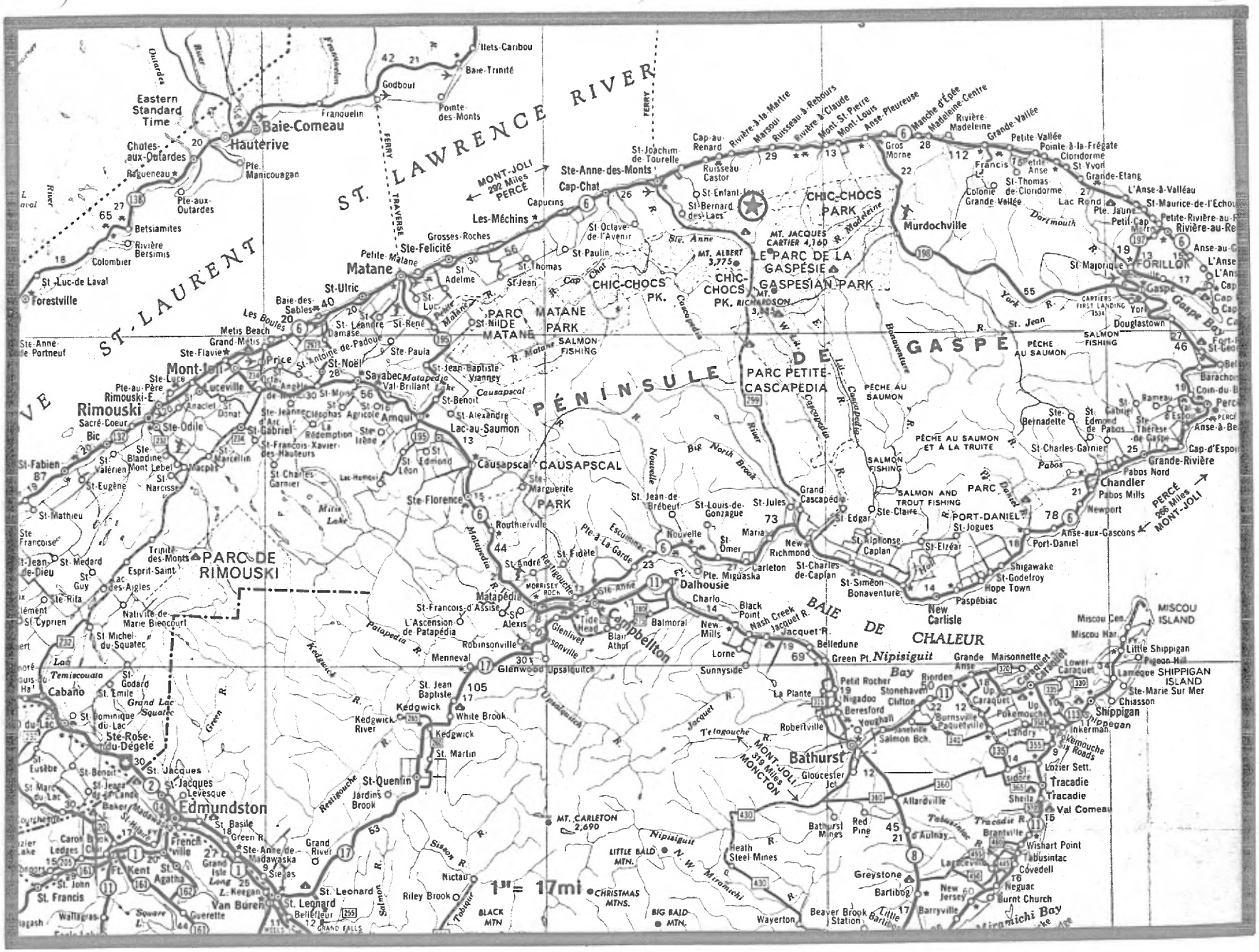
Complementary field investigations. (If necessary.)

Phase III

Drilling the targets.

Assume for this part of the programme 3,000 metres (BQ size) of drilling for this geological situation - at $100.00/m.

This doesn't include engineering, assays, coreshack and other relevant equipment.



LOCATION MAP