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REPORT ON

GEOLOGICAL AND GEOPHYSICAL SURVEYS

FOR

COPCONDA-YORK RESOURCES INC.

RYERSON TOWNSHIP, DISTRICT OF PARRY SOUND

ONTARIO

N.T.S. REFERENCE 31E/12

Toronto, Ontario, Canada
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CONCLUSIONS

The Copconda-York Resources Inc. Ryerson township property covers part of a geological structure which hosts a major concentration of flake graphite in at least one and, possibly, more than one zone. The confirmed zone appears to be of sufficient magnitude to accommodate open pit mining methods, although neither the grade nor the absolute size of it has been confirmed. In terms of economic potential, the mode of occurrence is near the top, in order of world importance.

All-weather road access to supplies in local established communities, and to the Great Lakes shipping terminal at Parry Sound, guarantees greatly reduced exploration and development costs as well as low-cost movement of products to world markets.

Geological and geophysical mapping, the results of which form the basis of this report, defined three areas or zones deemed to have a high potential for further development. These zones, A, B, and C all warrant detailed exploration at this time, by trenching and/or diamond drilling. Funding should be provided for such a programme. Also, it is absolutely necessary to have some of the best material exposed, or easily uncovered, bulk sampled and tested, to determine (a) possible percentage recoveries of graphite, (b) flake sizes, flake graphite to smoke, amorphous, and dust graphite ratios and (c) the quality of the possible products, particularly the flake fractions.

SUMMARY

The Copconda-York Resources Inc. Ryerson Township property is located in a classic graphite host environment similar, in many respects, to the economically important sources of flake graphite in the Malagasay Republic (Madagascar) and Norway. All-weather road access to the property from established communities, including the Great Lakes shipping terminal at the Town of Parry Sound, guarantees greatly reduced exploration and development costs as well as low-cost movement of products to world markets.

Graphite occurs along a strike length in excess of 1,000 metres (3,200 feet). Indicated widths along part of the mineralized zone are sufficient to be amenable to open pit mining methods. Thus, in view of the current economics relating to the production of flake graphite, although no ore body is known to exist on the property at this time, it is the writer's opinion that the results of the work discussed in this report are sufficiently encouraging to justify further exploration by diamond drilling.

INTRODUCTION

Copconda-York Resources Inc., under various agreements, holds the mineral rights and certain other rights of ingress and egress to a block of patented property in Ryerson Township, District of Parry Sound, Ontario. The property covers part of a recently discovered flake graphite occurrence.

On October 11, 1982, Geosphere Consultants Limited was engaged by the company to carry out preliminary exploration of the property as previously recommended by the author. The scope of this report is to provide a general review of graphite and an assessment of the economic potential of the graphite occurrence in Ryerson Township based on results of the work completed to date. The purpose of this report is to provide recommendations for the next stage of investigation and exploration to appraise that potential.

In addition to the results of the recently completed work, this report is based on the following activities: a review of numerous published reports and papers on graphite, its uses, and modes of occurrence; time spent on the property while field work was in progress as well as several prior visits to the area; personal experience. None of the documents or agreements pertaining to ownership, or the rights of the optionor to any of the lands discussed in this report were examined by the author.

GRAPHITE - A BRIEF REVIEW

(i) Uses

Natural graphite occurs in two forms: amorphous and flake (cyrstalline). Its uses are dependent upon its physical and chemical properties. It is unctuous, which accounts for its demand as a dry lubricant and which, combined with its high electrical conductivity, makes it useful for motor and generator brushes. It is soluble in molten iron and therefore is used to raise the carbon content in steel, its largest single use. Graphite is unequaled for many refractory uses, including crucibles, because of its high heat conductivity, its slow burning property, and its ability to retain good strength at high temperatures. It is probably best known, however, for its use in such products as pencils, batteries, paints, inks, and brake linings. Relatively recent, new technological advances in the fabrication of carbon fibre reinforced epoxies have created a new and rapidly expanding market for natural flake graphite. This new material is light weight, tough, durable and is replacing metal in a myriad of products. It is lighter in weight than the metal alloys used in aircraft construction and has several times the strength of cold rolled steel. It is used in an ever increasing variety of products including tennis racquets, golf club shafts, rifle barrels, high temperature heat shields for the U.S. Space Programme, and aircraft skin fabric.

(ii) Sources

Half of the total world production of graphite is in the amorphous form and comes from Mexico, Austria, and North and South Korea. It is available in large quantities and current world mine capacity can more than satisfy world demand. Consequently, prices for amorphous graphite have remained relatively stable and low.

Flake (crystalline) graphite is in shorter supply and prices have been rising steadily since the mid-1970's until, by December 1981, the price for No. 1 flake reached $1,500.00 per ton (Northern Miner, December 10, 1981, Page 10). The main producers of flake graphite are Sri Lanka, Malagasy Republic (Madagascar), West Germany, Norway, Brazil, North Korea, and China (Pettifer, 1980). However, perceived social and political instabilities in many of these countries are prompting consumers to seek new sources of supply. In this respect it should be noted that there are very strong traditional producer-consumer relationships because of the "low degree of interchangeability between graphite of different origins. Once a suitable grade for a particular application is found, the consumer tends to draw from that source, and that source only, if at all possible. This is due to the fact that, as far as practical considerations are concerned, there is an extremely wide variation in the properties of different graphites" Pettifer, 1980.

The terms "manufactured", "artificial", "electric-furnace", and "synthetic" are used to describe graphite produced from petroleum coke. However, manufactured graphite is not substitutable for natural graphite in many applications and cannot compete with natural graphite in most uses because of its greater cost.

(iii) Modes of Occurrence

Most, if not all, of the world's deposits of flake graphite "occur in rocks of Precambrian or early Paleozoic age" (Spence, 1920). This is the case in Ontario where all graphite occurs in rocks of the late Precambrian metasedimentary Grenville Supergroup. Six modes of occurrence have been developed and are listed below in order of world economic importance.

(1) Disseminated flakes in paragneiss (calcareous paragneiss, quartz-mica schists, feldspathic or micaceous quartzites) e.g.: Madagascar, Norway.

(2) Metamorphosed coal beds, carbonaceous shales, phyllites, slates. Occurs as amorphous graphite e.g.: Austria, Mexico, South Korea.

(3) Veins, fracture fillings, cavities, pockets, stockworks. Host rocks commonly gneiss, metasediments, at contact of pegmatites with marbles. Occurs as flake, lump and crystalline graphite; also as amorphous (Mexico) e.g.: Sri Lanka, U.S.A., Mexico.

(4) Contact Metasomatic (Hydrothermal). Occurs in silicated marble, lime silicate skarn, pockety skarn deposits. Occurs as flake, crystalline, fibrous or columnar e.g.: Black Donald (Ontario), Korea.

(5) Disseminated flakes in marble or cyrstalline limestone.

(6) Disseminated in pegmatites, syenites, and granites. Occurs as flake and lumps.

Ontario's paragneiss-hosted graphite deposits, in particular, have the potential of developing into large tonnage, medium-grade mining situations, supplying good quality flake graphite.

HISTORY OF GRAPHITE IN ONTARIO

Reports by Spence (1920) and Hewitt (1965) discussing graphite in Canada and Ontario, respectively, and the regional mineral occurrence reports by Thompson (1943) in North Hastings, Satterly (1944) on Lanark, Satterly (1945) on Renfrew, Vos and Storey (1981) in Pembroke-Renfrew, and Papertzian and Kingston (1982) on Eastern Ontario, provide the bulk of available data including details of geology, genesis, and mode of occurrence in Ontario.

First mining and milling of Canadian flake graphite ore commenced in Quebec in 1845, in the Township of Grenville. The earliest production in Ontario came from the Port Elmsley deposit in 1870. The famous Black Donald Mine at Calabogie commenced operation in 1896 and, until the depletion of reserves in 1954, produced 85,154 tons of graphite which represents 94% of Ontario's total production. Currently, Vesuvius Crucibles Inc. of Pittsburgh, Pa., U.S.A. is reported to be making determined efforts to delineate and prepare for production a Grenville Series hosted graphite deposit in Butt Township, Ontario and a second company is seriously investigating a deposit in the Maniwaki Area of Quebec.

Thus, past mining has demonstrated a capability for sustained production of high grade flake graphite from Grenville Series rocks in Eastern Canada, and prices and market conditions would appear to be most encouraging for a new Canadian entry into the market.

SELECTED SOURCES OF INFORMATION

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U.S.G.S.

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Ont. Dept. of Mines, Ann. Rept. Vol. 52, Pt. 3.

Vos., M.A. and Storey, C.C.
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Pt. 2; Ont. Geol. Surv., M.D.C. 22.

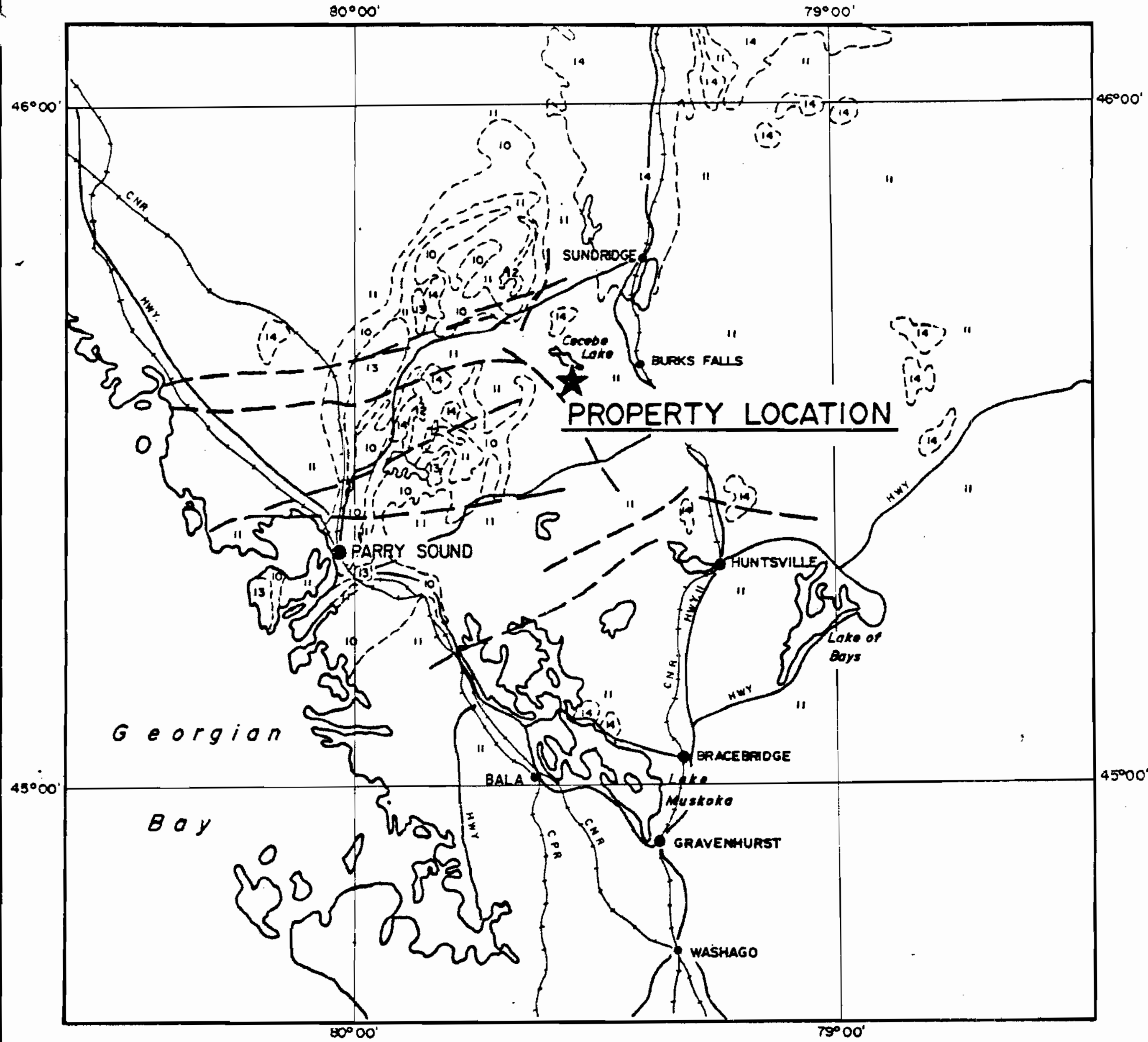
PROPERTY DESCRIPTION, LOCATION, ACCESSIBILITY

The Copconda-York Resources Inc. holdings are situated near the centre of Ryerson Township, District of Parry Sound, Eastern Ontario Mining Division, Province of Ontario. They cover approximately 325 acres comprising three entire lots and a portion of a fourth. The mineral and surface rights are all patented, the lots are contiguous, and are described as follows: the SE Part, Lot 20, Concession IX; Lots 18, 19 and 20, Concession VIII.

The property is located about 10 kilometers west from the Town of Burk's Falls via a secondary all-weather road which passes the northeast corner of Lot 18, Concession VIII. Burk's Falls is situated on Provincial Highway No. 11, 90 kilometers south of the City of North Bay and 245 kilometers north of Metropolitan Toronto. The Great Lakes shipping terminal at Parry Sound, on the northeast shore of Georgian Bay, is 65 kilometers by all-weather road to the southeast.

Preliminary electric power requirements for any planned development could probably be met by tapping into a 550 volt transmission line which parallels the main road through the area.

Adequate supplies of water are available from a large, natural, stream-fed pond located on Lots 23, Concession IX and X. High ridges are covered with second growth hard maple, birch and poplar, and the lower ground supports a medium to heavy growth of spruce and balsam along with the usual varieties of alders and willows. Differences in elevation are about 30 metres (100 feet) throughout the subject area.



LEGEND

PRECAMBRIAN

14	Granodiorite, granite

GRENVILLE PROVINCE

13	Diorite, gabbro, peridotite
12	Carbonate Metasediments
11	Clastic Metasediments
10	Mafic to Felsic Metavolcanics
— —	Fault

NOTE: Geology from O.D.M Map 2197, Ontario Geological Map Southern Sheet, 1970

GENERAL GEOLOGY & LOCATION MAP

COPCONDA-YORK RESOURCES INC.

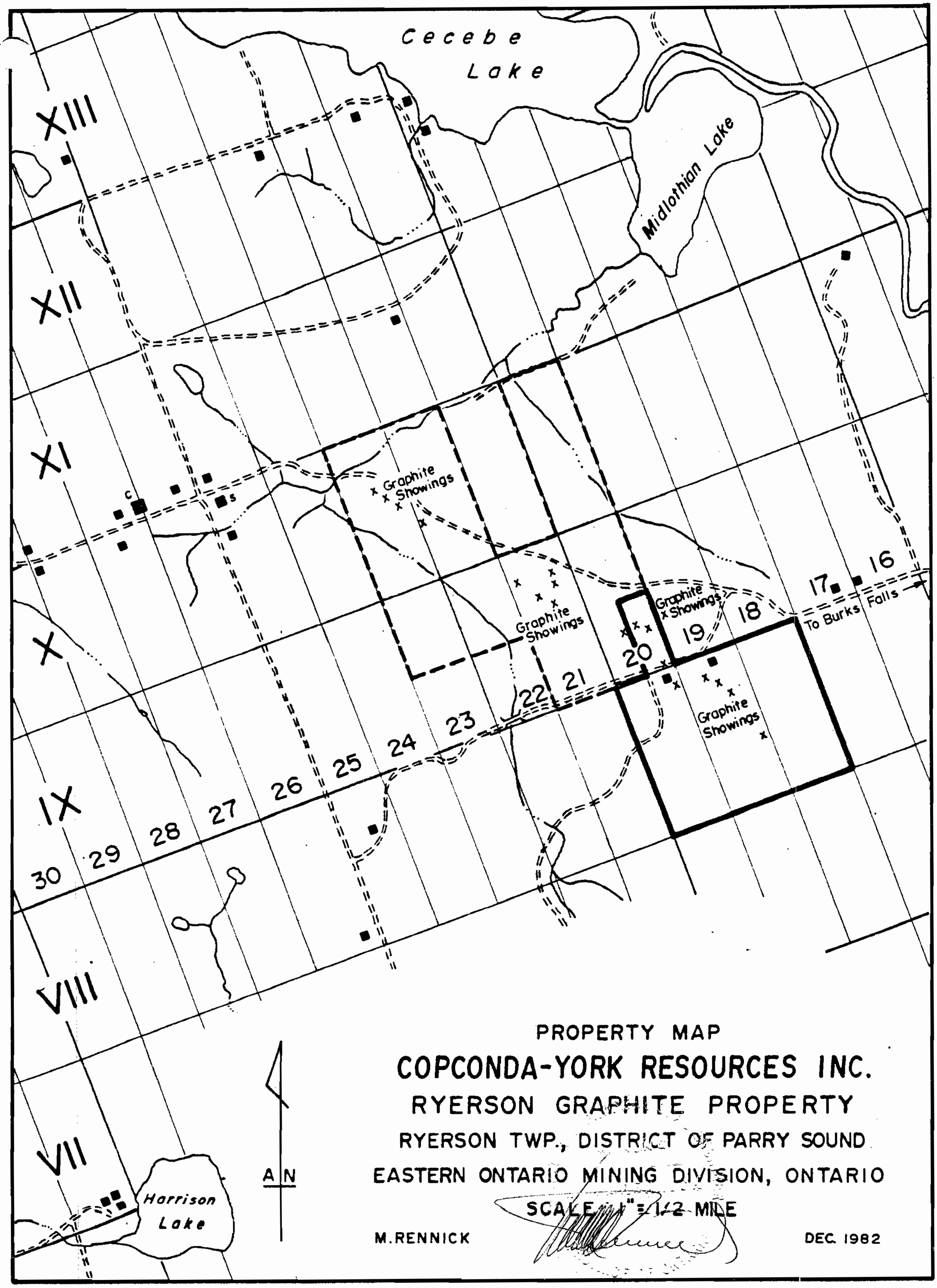
RYERSON GRAPHITE PROPERTY

RYERSON TWP., DISTRICT OF PARRY SOUND

EASTERN ONTARIO MINING DIVISION, ONTARIO

SCALE: 1" = 16 MILES

M.RENNICK DEC. 1982


Cecebe Lake
Midlothian Lake
XIII
XII
XI
X
IX
VIII
VII
Graphite Showings
Graphite Showings
Graphite Showings
Graphite Showings
30
29
28
27
26
25
24
23
22
21
20
19
18
17
16
To Burks Falls
Harrison Lake
N
PROPERTY MAP
COPCONDA-YORK RESOURCES INC.
RYERSON GRAPHITE PROPERTY
RYERSON TWP., DISTRICT OF PARRY SOUND
EASTERN ONTARIO MINING DIVISION, ONTARIO
SCALE 1" = 1/2 MILE
M.RENNICK
DEC. 1982

PREVIOUS WORK

Graham M. Ackerley of Bracebridge, Ontario discovered the graphite zone discussed in this report while prospecting in the region during the autumn of 1981. Since making the discovery Mr. Ackerley has prospected the area in considerable detail.

Prior to commencing the exploration work discussed in this report, the writer visited the area several times.

WORK UNDERTAKEN

All work, the results of which form the basis of this report, was conducted under the author's supervision.

A grid of lines 50 metres apart was cut, chained, and picketed at 30 metre intervals over part of the property. The grid was controlled by a base-line run on an azimuth of 315 degrees. All confirmed lot corners and prominent topographical features were mapped and tied into the grid.

Geological data were collected and field plotted by D.E. McBride, Ph.D., P.Eng., of 20 Forsythia Drive, Scarborough, Ontario. The final compilation and drafting of the data was done by E. Seagrave of 163 Horsely Hill Drive, Toronto, Ontario.

The V.L.F. electromagnetic survey was conducted using a Geonics Model EM-16 receiver tuned to the U.S.A. naval station N.A.A., transmitting from Culter, Maine, at a frequency of 17.8 kHz. Readings were taken at maximum 30 metre intervals along all grid lines. Messrs. Wayne Hickey of Bracebridge, Ontario and Rodigue Beaulieu of Fort Coulonge, Quebec were employed to collect the V.L.F. survey data.

The magnetic survey data were collected by F. Hodgkinson, P.Eng., of 221 Audrey Avenue, Toronto, Ontario utilizing a proton precision magnetometer, McPhar Model GP-81, with a stated absolute accuracy of $\pm$ 1 gamma. Readings were taken at maximum 30 metre intervals along all lines. Normal periodic checks with established base stations were maintained during the survey to monitor diurnal variations and instrument drift. Any changes noted were applied as factors and a proper adjustment was made to each reading taken during that period of time. The base value for the magnetic data was established at 56,000 gammas.

A horizontal loop electromagnetic survey was conducted by F. Hodgkinson over selected portions of the property utilizing the Apex Maxmin II instrument in the horizontal configuration, with a transmitter - receiver separation of 60 metres. Readings of the in-phase and out-of-phase components of the resultant field at 444 Hz and 1777 Hz were recorded at each station occupied. Stations were occupied at maximum 30 metre intervals along lines spaced 100 metres apart.

At the same time the various surveys were being conducted, a small rock trenching programme was carried out by Bud Langley of 49 Jayfield Road, Brampton, Ontario L6S 3G3. These trenches were tied into the grid and sampled by the writer.

Upon completion of field work the geophysical data were digitized and computer processed by William Jamal and Associates Ltd., 6117 Yonge Street, Toronto, Ontario M2M 3W2. The plan presentations of all data are at a scale of 1:2500.

Values for the contour presentation of the V.L.F. electromagnetic data were produced by subjecting the in-phase component to "Fraser filtering", to provide the base data for manual contouring at 10 unit intervals. In-phase and quadrature profiles of the V.L.F. data were computer plotted at a vertical scale of 1 cm = 40%. In-phase and out-of-phase profiles of both sets of Maxmin data were computer plotted at a vertical scale of 1 cm = 4%. No corrections were made for topographic variations.

Field work commenced on October 13 and was completed on November 7. Data compilation was completed on December 9, 1982.

GENERAL REMARKS

In total, 20.72 kilometers (12.95 miles) of lines were cut, chained and picketed over the property, including 1.52 kilometers (0.95 mile) of base-line. All collected data appear to be in good order and of good quality. Because manual contouring was employed for both the magnetic and filtered V.L.F. data presentations, the usual bias consistent with machine contouring was eliminated.

The McPhar Model GP-81 proton precision magnetometer is a highly sophisticated instrument which measures the total value or intensity of the earth's magnetic field at a point. Because most rocks are magnetic to some degree, the systematic recording and processing of magnetic values from many point, in an area where the rocks are, for the most part, covered by overburden, provides a basis for extending exposed formations through covered areas and detecting hidden lithilogical and structural features which can influence future exploration of a property.

The Geonics Model EM-15 V.L.F. electromagnetic receiver was developed to take advantage of a world-wide network of radio transmitters, established and maintained by the U.S.A. Navy, for communicating with submarines. These radio stations have vertical antennae which create concentric horizontal electromagnetic fields in their areas of influence. When these fields encounter electrically conductive bodies in the ground such as concentrations of sulphides, graphitic material and wet shear zones or water courses, a secondary field is created. The V.L.F. EM-16 receiver measures the vertical component of the secondary field as a percentage of the primary field and the phase difference between the primary and secondary fields. A transmitter station is selected to provide a field approximately at right angles to the strike of anticipated conductive zones or geological features to be investigated. Interpretation techniques have been highly developed and, in addition to searching out concentrations of economic mineralization, the system data are especially useful in defining structural features such as offsetting faults and shear zones.

The Maxmin II instrument is a highly sophisticated and discriminating electromagnetic survey unit which can be employed either in a vertical or horizontal mode. In this instance it was operated in the HL-horizontal - configuration. The ideal profile of these data over a conductive body forms a curve with positive shoulders as the conductor is approached, and a negative trough over the conductor. Both the in-phase and out-of-phase response show the same general curve over a conductor except in areas of deep overburden, in which instance phase rotation phenomena can alter the ideal type of response over a bedrock conductor source. The ratio between the in-phase and out-of-phase response over a conductor provides a qualitative indication of its conductivity, as do the responses at different frequencies. Conductivity thickness determinations (mhos) provide a quantatative method for comparing the degree or intensity of conductivity. In general, the ratio of in-phase to out-of-phase response increases as the conductivity of the causative source increases. A ratio of 1.0 or more is considered to be typical of the response generated by a massive sulphide body.

GEOLOGY

(i) General

The Copconda-York Resources Inc. property is entirely underlain by middle to late Precambrian rocks of the Grenville Supergroup or Series. Rocks of this series occupy a roughly rectangular section of the Canadian Shield, 1,750 kilometers long and 320 kilometers wide, with the long axis extending in a northeasterly direction from the east shore of Georgian Bay in Ontario to the northeast coast of Labrador.

Rocks of the Grenville Series are characterized by moderate to high grade regional metamorphism and complex structural style. Recent field studies conducted in Ontario, by personnel of the Geological Survey of Canada, have begun to sort out some of the structural complexities and provide useful information to guide future exploration of the economic mineral potential in this portion of the Grenville Supergroup.

In the Province of Quebec, Grenville Series rocks host major iron ore bodies at Wabush and Gagnon, iron and titanium ore bodies at St. Urban and Lac Tio, a major niobium ore body at St. Honore, and smaller but economic occurrences of magnesium, phosphate, iron, copper, lead, zinc, and precious metal ores at a number of other locations. The uranium ores of the Bancroft Area in Ontario are hosted by rocks of the Grenville Series and iron ore, precious and base metal ores, as well as a variety of industrial minerals have been mined in the past from this environment. All of the more than 50 known graphite deposits, occurrences, prospects, and past producers in Ontario are situated in the Grenville Province.

(ii) Description of Rock Types

Field mapping over the property outlined five distinct rock types. It is possible that at a greatly enlarged scale, the gneisses could be further sub-divided. However, on an exploration basis such definition, particularly at this time would have been impractical and redundant. Units that were outlined are described as follows.

METAGABRO - is usually massive, dark green to black in colour, fine to medium grained, and retains relics of ophitic texture. Foliation in outcrops of this unit is generally light.

GRANITIC ORTHOGNEISS - is massive, red to brick red in colour, coarse grained, and coarsely foliated. Orthoclase and biotite are the major mineral constituents with accessory quartz and hornblende.

QUARTZ-BIOTITE GNEISS - is massive, light to dark grey in colour on fresh surfaces, fine to medium grained, and intensely foliated. Quartz and biotite are the main mineral constituents. Accessory minerals include plagioclase, red or brown garnet, and the occasional grain of pyrite.

QUARTZ-BIOTITE-BROWN GARNET GNEISS - is massive, medium to dark grey in colour on fresh surfaces, fine to medium grainted, and intensely foliated. Quartz and biotite are the main mineral constituents. Brown garnet in varying amounts is, megascopically, the most prominent constituent. Other accessory minerals include plagioclase, hornblende and minor pyrite.

QUARTZ-BIOTITE-RED GARNET GNEISS - is massive, medium to dark grey in colour on fresh surfaces, fine to medium grained, and strongly foliated. Quartz and biotite are the main mineral constituents. Plagioclase, varying amounts of red garnet, minor hornblende and pyrite, are the common accessory mineral constituents.

HORNBLENDE-QUARTZ-BIOTITE GNEISS - is massive, dark grey to black in colour on fresh surfaces, fine to medium grained and strongly foliated. Plagioclase is an accessory mineral and red garnet may or may not be present.

In addition to the rocks described above, small pods or lenses of a very coarse grained PEGMATITIC material was noted during the field mapping. Usually not more than three to five metres long or in diameter, these masses are composed of quartz and grey to pink coloured feldspar. They appear to form no pattern of distribution but may occur more frequently in the graphite-bearing zone(s) than elsewhere.

(iii) Mineralization

The most prominent feature on the property is a series of light to dark grey coloured, fine to medium grained, flake graphite-bearing, quartz-biotite gneiss outcrops which are believed to be part of a continuous zone of graphite mineralization. The zone has an indicated width of 20 to 30 metres or more along a strike length of 1,000 metres.

Within the mineralized zone(s), graphite occurs as seams or laminae of fine to coarse flakes in bands of varying concentrations estimated to run from less than one percent to more than 10 percent. This zone also carries appreciably more pyrite than the graphitic-barren gneisses and often presents a friable, dark brown to black coloured "burn" on outcrop surfaces. A distinct, pale mauve coloured garnet is also commonly present in the mineralized zone.

Exposure along the north half of the zone is good but heavier overburden along the south half obscures all but a few outcrops.

Samples taken by the author from the three trenches put down on the mineralized zone returned assays of 0.53% to 2.65% Graphitic Carbon, 0.78% to 2.90% Total Carbon and a 30-element spectrographic anaysis indicated the presence of up to 0.05% copper and 0.1 ounce per ton silver.

(iv) Structure

Regional metamorphism has imparted a very pronounced foliation to the various rock assemblages on the property and this foliation grades into more highly developed schistosity in more locally deformed areas.

For the most part, foliation appears to parallel the strike and dip of the bedding planes, except in areas of tight, complex folding. Local crimping and crenulations are common.

No major faults appear in the mapped area unless the beaver pond and creek system which traverses the west part of the property represents such a feature. Perceived offsets along the mineralized zone and some of the electromagnetic conductor axes may be due to minor, north trending faulting and facturing, or warping.

Although nowhere is it evident on the basis of compiled data from the surveyed area, detailed information from the adjacent property to the north and northwest indicates that Copconda-York's property is situated on the nose of an overturned, southeast plunging anticlinal structure, the axis of which is represented by the graphite mineralized zone.

DISCUSSION OF RESULTS

In-as-much as the purpose of the work discussed in this report was to develop a physical relationship between the various known graphitic mineral occurrences and extend them to reasonable limits, the programme was a success. Results of the various methods employed to do this are discussed below.

(i) Geological Mapping

This work produced a comprehensive picture of underlying bedrock formational implications and mineral associations. However, whether or not the concentration of graphite is related to folding or to the proximity of metoplutonic rocks has yet to be determined. What was confirmed, is that a series of mineralized outcrops which extend from the northwest corner to the southeast corner of the property can confidently be assumed to be parts of a continuous zone of mineralization, 20 to more than 30 metres wide, dipping to the southwest. Although both the strike and dip of foliation can change dramatically from outcrop to outcrop, the general strike of the formations varies only slightly, from 300 to 315 degrees, with dips to the southwest.

(ii) Geophysical Survey

5.95 miles of the grid were surveyed with the HL Maxmin II electromagnetic unit unit and 297 stations were occupied. Readings were taken on two frequencies (444 Hz and 1777 Hz) at each station.

12 miles of the grid were surveyed during the course of the magnetic and V.L.F. electromagnetic surveys. Magnetic readings were taken at 743 stations and data were recorded from 668 stations during the V.L.F. electromagnetic survey.

Three major conductive units were outlined by the EM 16 and Maxmin II surveys over Copconda-York's Ryerson township property. The V.L.F. survey, utilizing the transmitter at Cutler, Maine, U.S.A., was used primarily to outline the location of graphitic units, while the HL Maxmin survey was undertaken to evaluate apparent thicknesses, apparent dips and vertical depths to the top of the conductive units. Conductivity-thickness products, based on previous response comparisons with the response of known free-air models, were made at both 1777 Hz and 444 Hz where possible.

Zone A extends over a large portion of the grid - from 200S to 1600S - with variable levels and qualities of response from the EM 16 profiles (Plate 4). A major interval of moderate conduction, with peak to peak amplitudes of 80-90% in-phase and cross-over type signatures, is indicated from 900S to 1200S. Out-of-phase correlation is weak and in the same sense. From 200S to 600S, amplitudes are moderate but the out-of-phase amplitudes in this area are slightly higher, thus indicating a slightly lower level of conduction. The horizontal loop electromagnetic survey at 1777 Hz has outlined the zone on many of the sections, primarily because of a recognizable out-of-phase, with little or no corresponding in-phase correlation (Plate 7). Very low conduction is indicated for this zone.

Not surprisingly, the best conduction and corresponding in-phase signatures are noted from 900S to 1200S. Widths of 25 metres, steep westerly dips, and generally thin overburden have been interpreted. The thin cover can be correlated to the steep gradients on the EM 16 profiles. Shallower gradients along the conductor probably relate to deeper conductors or, potentially, wider zones and this contradiction may need to be evauluated further by diamond drilling. Except for the above interval, there is virtually no response at 444 Hz on any of the profiles (Plate 6).

Zone B extends from 450S to 1500S. EM 16 responses are generally of the low amplitude, inflection point variety with moderate to strong out-of-phase correlation in the same sense. A low level of conduction is clearly indicated by these data as well as by the HL Maxmin II profiles. All sections show a complete lack of in-phase correlation and the previous interpretation of low conduction, from the EM 16 profiles, is reinforced. Also, as with Zone A, there is no apparent response from the zone to the 444 Hz frequency.

Zone C extends from 950S to 1550S with moderate in-phase amplitudes, inflection point responses, and very little out-of-phase correlation. Low conduction is inferred with the possibility of broad zones, noted on the 1777 Hz out-of-phase, horizontal loop data being responsible for the shallow inflection gradients in the V.L.F. data.

As noted on the magnetic survey map (Plate 2), all conductive units appear to be non-magnetic and occupy low areas or undisturbed gradients on the flanks of "lows". Low susceptibilities appear to reflect areas of underlying units of graphitic-quartz-biotite gneiss and quartz-biotite-gneiss, while the remaining units or formations demonstrate moderate to high susceptibilities.

<u>(iii) Rock Trenching</u>

Concurrently with the geophysical work, a modest programme of rock trenching was carried out. Three trenches were excavated to provide fresh, mineralized rock for examination and rock samples for analytical purposes. In fact, the trenches were not put in the most eminent locations and this is illustrated by the sample assay results.

Trench No. 1 is located at 422S and 75W. The excavation, created by drilling and blasting, measures 18 feet x 6.5 feet x 2 feet deep. Starting at the east end of the trench, a 6.5 foot section was chip sampled. Sample No. TR#1.

Trench No. 2 is located at 510S and 45W. The trench was opened up by drilling and blasting, and measures 20 feet x 6.5 feet x 2 feet deep. A chip sample was taken along the entire length of the trench and two, duplicate, select samples were taken from the most westerly 1.5 feet of the excavation. Sample Nos. TR#2 and TR#2A (selects).

Trench No. 3 is located at 709S and 95E. It measures 11.5 feet in length, 10.0 feet in width, and it averages 2.0 feet in depth. A chip sample was taken along the most westerly 8.0 feet of this trench. Sample No. TR#3. Note that the long axis of all three trenches is approximately normal to the local strike of the formations.

Of the five samples taken, four were sent to Technical Service Laboratories for determination of Total Carbon and Graphitic Carbon contents. The rejects from Sample TR#3 were sent to X-Ray Assay Laboratories as Sample #T11625-3, along with the other half of select, duplicate Sample #TR2A, for purposes of comparison. Assay results for all samples are set out in the following table of results.

		PERCENT			
Sample No.	Laboratory	Total C	Graphitic C	Organic C	CO_2
TR#1	TSL	0.78	0.53	ND	ND
TR#2	TSL	1.12	0.96	ND	ND
TR#2A	TSL	2.90	2.65	ND	ND
TR#3	TSL	1.44	1.00	ND	ND
TR#3 (T11625-3)	XRAL	1.30	0.75	0.5	0.2
TR#2A(duplicate)	XRAL	3.10	2.25	0.7	0.2

RECOMMENDATIONS

It is recommended that a bulk sample of appropriate size be taken and shipped to an acceptable testing laboratory where the overall recoverable carbon content, graphite flake size and quality, and the associated graphite products such as smoke, amorphous, and dust can be determined. Concurrently, a diamond drilling programme, to determine the potential size and grade of the various zones defined by geological and geophysical mapping, should be carried out.

Drill holes should be directed to test the best geophysical response areas in each of the three zones indicated. Where graphite is found to be present in quantity, two holes should be drilled on a section, one below the other. Initially, five two-hole sections should provide sufficient information on which to base plans for a much more substantial and detailed diamond drilling programme.

All of which is respectfully submitted for your information and consideration.

Toronto, Ontario, Canada
December 9, 1982

Melville William Rennick, P.Eng.
Consulting Geologist

ESTIMATE OF RECOMMENDED PROGRAMME COSTS

Bulk Sampling, Beneficiating, Grade And Quality Testing		$ 30,000.00
Diamond Drilling - 3,000 feet @ $30.00/ft.	$90,000.00	
Assaying	8,500.00	
Project Supervision & Management Including Transportation, Subsistence & Miscellaneous Expenses	15,000.00	113,500.00
Sub-Total		$143,500.00
Plus Contingencies @ 20%		28,700.00
Total Estimated Exploration Costs		$172,200.00

Toronto, Ontario, Canada
December 9, 1982

Melville William Rennick, P.Eng.
Consulting Geologist

CERTIFICATE

I, Melville William Rennick, of the Borough of East York, in the Municipality of Metropolitan Toronto, do hereby declare:

1. That I am a consulting Geologist residing at 234 Donlea Drive, Toronto, Ontario M4G 2N2.

2. That I am a graduate of the Provincial Institute of Mining, Haileybury, Ontario, in 1955 and have been continuously engaged as a practicing geologist since that time, and I am a Registered Professional Engineer in the Province of Ontario.

3. That the foregoing report is based on several sources of information including published reports and articles relating to graphite as well as results of the work discussed therein.

4. That I planned, supervised and personally participated in the various components of the programme discussed in the report.

5. That I have no interest, direct or indirect, in Copconda-York Resources Inc., nor do I expect to receive or acquire any such interest.

Toronto, Ontario, Canada
December 9, 1982

Melville William Rennick, P.Eng.
Consulting Geologist

Report from Asbury Graphite

1-201-537-2155 - W.L. Kenan

Mesh Size	% of Sample	Carbon Content
20	.3	5.2
40	7.2	4.9
60	33.0	1.8
80	17.1	2.0
100	9.0	1.6
200	19.8	1.6
over 200 pan size	13.6	2.5
		2.1% carbon (average)

Flotation	Weight in Grams	% by Weight	% Carbon
1st	2	.25	75.8
2nd	traces only	-	-
Tailings	732	91.50	1.1
Cleaner Concentrate	26	3.2	23.9
Cleaner Tailings	24	3.0	3.9
			2.1% (average)

COMMENTS

Separation no problem!!

Not a real true flakey material, more of a chip type flake.

Coarse fraction they will send us is flatten out because of grinding through a double disc grinder.

OM 82-9-C-148

R&D SAMPLE NO. 2047
DATE: 1-25-82

To The Copconda York Graphite Project
Graham M. Ackerley / Project Manager
RR #1, George Rd.
Bracebridge, Ontario POB 1CO
Tel (705) 645-6061

Grade - Crude ore

REPORT OF ANALYSIS

HARD

THOSE SPACES FILLED INDICATE ANALYSES PERFORMED

1. CARBON/ASH .99% strait crude.
2. SCREEN — (U. S. STD.)

Mesh		%C LOI
( )		
( )		
(4)		
(6)		
(8)		
(10)		
(12)		
(14)		
(16)		
(18)		
✓ (20)	.3	5.2%
(30)		
(35)		
✓ (40)	7.2	4.9%
(50)		
✓ (60)	33.0	1.8%
(70)		
✓ (80)	17.1	2.0%
✓ (100)	9.0	1.6%
(120)		
(140)		
(170)		
✓ (200)	19.8	1.6%
(230)		
(270)		
(325)		
(400)		
✓ Pan	13.6	2.5%

2.1% C LOI

3. A.P.D. -
@ - Por.

4. SCOTT VOLUME

5. ELECTRICAL RESISTANCE -
6. VOLATILE CONTENT - .94%
7. MOISTURE - .155%
8. SULFUR - .620%
9. —20 MICRONS
10. **NOT USED ON THIS FORM**
11. pH -
12. OILY —
13. EXPANSION -
14. SURFACE AREA -
15. TRUE DENSITY -
16. POPPING -
17. PRESSED DENSITY -
18. OTHER — Flotation - See data sheet.

R & D FORM #3

R&D # 2047

LABORATORY LOG

DATE 1-25-83

Flotation of Crude Graphitic Ore from The Copconda York Graphite Project

	Grams	% wt.	% C	% S
Rougher 1	2.0 gr	.25%	75.8%	.430
Rougher 2 - Only trace amount present on R2 float				
Tailing	732.0 g	91.5%	1.1%	.548
Cleaner Concentrate	26.0 g	3.2%	23.9%	1.35
Cleaner Tailing	24.0 g	3.0%	3.9%	1.42
Total wt. of ore added to flotation cell	800 g			
Products recovered	784.0 g			
Loss of product	16.0 g			
% Carbon calculated from flotation fractions	2.1%			