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GEOLOGY OF THE EASTMAIN RIVER ZINC PROPERTY

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QUEBEC

CHIBOUGAMAU MINING DISTRICT

FOR

WINDY MOUNTAIN EXPLORATIONS LTD.

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EXECUTIVE SUMMARY

In August 1999 a geological mapping program was carried out on the Windy Mountain Exploration Ltd. Eastmain Zinc property located within the Chibougamau Mining District, Quebec (Fig.1). The area was rated as a priority target for volcanogenic massive sulphide (VMS) style Cu-Zn mineralization, based on the results of previous exploration and prospecting activities (Winter, 1999, 1990; Prior, 1991). In 1990, ground follow-up of an airborne EM and magnetometer survey investigated 45 of 59 conductive zones of which 5 areas containing 10 anomalies were considered to have potential for hosting VMS mineralization. Of these, samples from 4 targets returned anomalous zinc and copper values (Prior, 1991). In 1996 and 1997 additional work in these four areas uncovered several massive sulphide boulders carrying values up to 5.5% zinc. The purpose of this supracrustal mapping program was to help further evaluate the property's potential for hosting economic VMS mineralization.

In October 1997, 160 claims were staked to cover the area of interest. An east-west striking unit of strongly foliated Archean amphibolite (of probably metavolcanic origin) lies within the central portion of the claim block (1:4000 scale property map located in back of report). To the north, the unit is bordered by Archean gneisses, and to the south, northeast, and west, by granitic to granodioritic intrusive bodies. Close to the northeastern contact, several granitoid and granitic pegmatite dykes intrude the amphibolite unit parallel to foliation. Only one mafic to ultramafic dyke was observed on the property. This massive olivine diabase intrudes the amphibolite near the southern amphibolite/granite contact.

The amphibolite unit extends the entire length of the property (~5.5 km), and has a maximum width of approximately 2 km. Felsic or intermediate metavolcanic rocks, and pyroclastic rocks, were not observed. However, a thin unit of metamorphosed sulphide facies iron formation lies within the central portion of the property. It is a distinctive pyrrhotite-rich conformable unit, only a few metres wide, traceable up to 2 km. Further to the southwest of this unit, along strike, lies a thin, discontinuous unit of fine grained amphibolite, containing distinctive porphyroblasts of cummingtonite-grunerite series amphiboles and disseminated pyrrhotite. It is believed that this may represent a metamorphosed interflow sedimentary rock, possibly conformable with the sulphide facies iron formation.

The greatest concentration of sulphide was observed within the east-west striking unit of

pyrrhotite-rich iron formation (bounded by grid lines 13+00W & 8+00E, and stations 11+25N & 6+00N). This area also corresponds to a northwest trending AEM anomaly and IP survey anomalies. It is concluded that the sulphide mineralization within the iron formation is responsible for the geophysical anomalies.

Visible signs of typical VMS style alteration (ie. significant sodium depletion, potassium enrichment, and chloritization) are absent, while silicification and minor epidotization are restricted to the areas immediately surrounding the iron formation. There are no areas within the property, based on alteration, which are considered good exploration targets.

The compiled geological data, including the lack of significant alteration, the absence of felsic or intermediate volcanic rocks and pyroclastic rocks, and that sulphide mineralization is restricted to the thin metamorphosed sulphide facies iron formation, and observed sphalerite mineralization occurs in cross cutting veinlets (of probable metamorphic origin), suggests that this property is a poor prospect for hosting a large tonnage VMS deposit.

RECOMMENDATIONS

Based on the results of this program it is recommended that no further work be done on the Eastmain River Zinc property. This recommendation is largely based on the absence of most universally acknowledged VMS exploration criteria, in particular, extensive zones of hydrothermal alteration Furthermore, the greatest concentrations of sulfides are found in association with a thin unit of pyrrhotite-rich iron formation. Sphalerite mineralization is typically less than 2%, occurring as fine grained disseminations and as crosscutting veinlets. This second type of occurrence is consistent with remobilisation and secondary concentration, probably related to the metamorphic event. Sulphides have low hardness, weak bonding, excellent glide properties, low melting points and relatively high solubilities in intergranular water, all of which makes mobilization and recrystallization in such a metamorphic environment a distinct possibility. The lack of observed VMS style alteration and mineralization, and the fact that the strongest geophysical anomalies can be explained by the metamorphosed iron formation, offers little support for continued work on this property.

TABLE OF CONTENTS

1:4000 scale property geology map located in the back of the report.

LIST OF FIGURES

LIST OF PLATES

LIST OF TABLES

1.0 INTRODUCTION

Presented in this report are the results of the August, 1999 (1:2500 scale) geological mapping program on the Windy Mountain Exploration Ltd. Eastmain Zinc Property (Fig. 1), whose main goal was to assess the property's potential for hosting a volcanogenic massive sulphide (VMS) deposit. Exploration objectives included investigating for felsic and intermediate rock types (evolved rhyolites and icelandites); subvolcanic intrusions; faults, shear zones (ie. synvolcanic faults), VMS style alteration (silicification, chloritization, epidotization, sodium depletion, potassium and magnesium enrichment), and for sulphide and base metal mineralization; all of which are considered favourable features of a VMS geological environment. Mapping control was provided by an exploration grid laid out at 100 metre spacings with 25 metre station separations.

Outcrop geology consists of an Archean, east-west striking and northerly dipping, massive amphibolite (probable mafic metavolcanic protolith), bordered to the north by Archean gneisses, and to the south, northeast, and west by granitic to granodioritic intrusive bodies. A northwest striking olivine diabase dyke intrudes the amphibolite near the southern amphibolite/granitoid contact, while several granitoid and granitic pegmatite dykes intrude the amphibolite near its northeastern contact with the granitoids. The abundance of felsic intrusive outcrops increases with proximity to the contact, and within the contact zone, amphibolites are seen as rafts and isolated outcrops surrounded by granitoids. A thin unit of metamorphosed sulphide facies (pyrrhotite-rich) iron formation lies within the central portion of the map area. It is seen as a conformable unit within the amphibolites, striking east and dipping ~50° to the north. To the northwest of this unit, lies a thin discontinuous unit of fine grained amphibolite hosting distinctive cummingtonite-grunerite porphyroblasts. Significant alteration (carbonatization, silicification, epidotization, and chloritization) was not observed, as were visible signs suggestive of sodium depletion and potassium enrichment.

The best conductor on the property is an east trending IP anomaly coincident with the outcrop exposures of the sulphide facies iron formation (bounded by grid lines 13+00W & 8+00E, and stations 11+25N & 6+00N). Sulphide mineralization consists of disseminated and blebby pyrrhotite up to 10% in places, lessor sphalerite as fine grained disseminated crystals and crosscutting veinlets, and minor disseminated fine grained chalcopyrite.

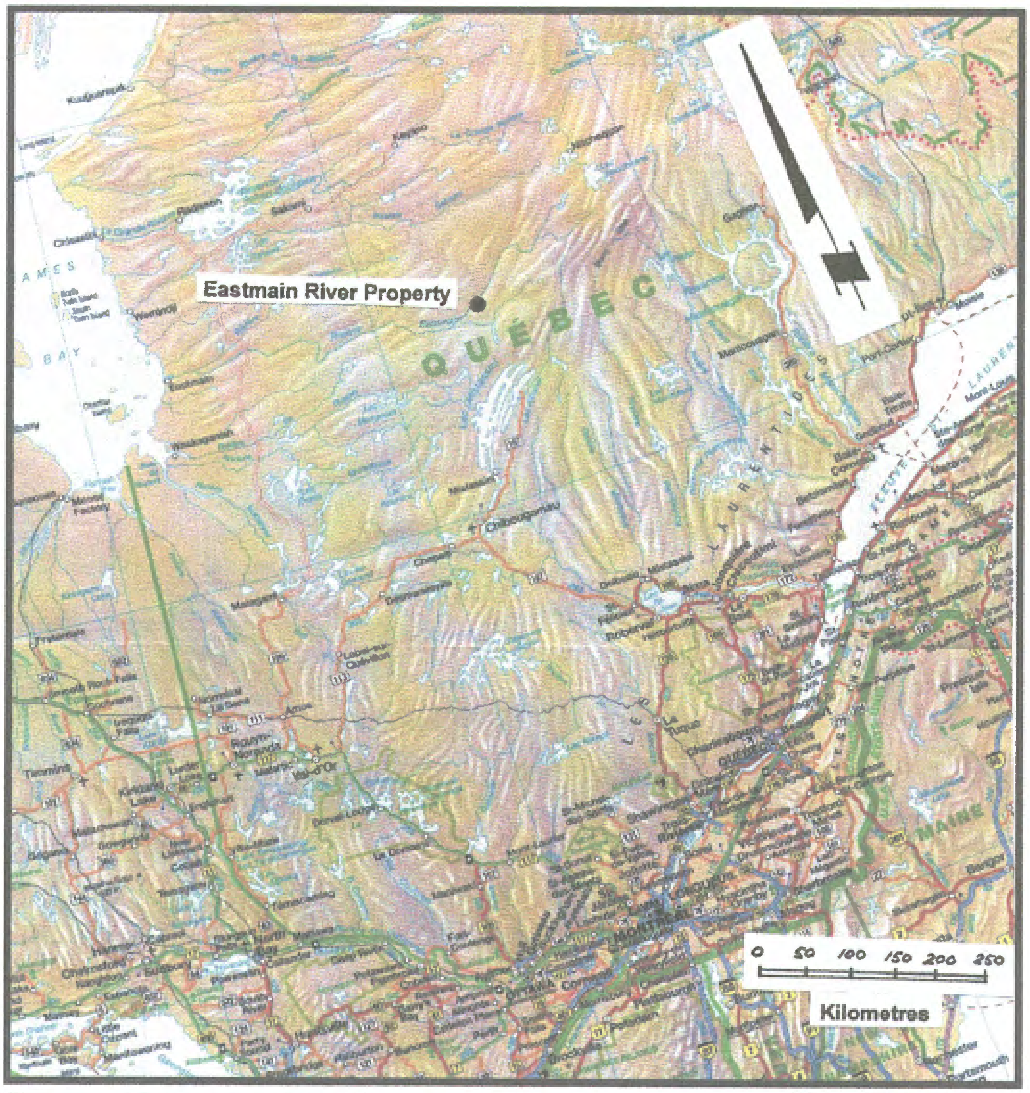

Figure 1. Eastmain River Zinc Property Location Map (after Winter, 1999).

2.0 LOCATION AND ACCESS

The Eastmain Zinc property is located approximately 200 km north-northeast of Baie du Poste, Mistassini and 300 km north-northeast of Chibougamau, Quebec (52°-19'N latitude, 72°-46'W longitude; Fig.1). Access to the property is gained only by air, either from Chibougamau (Temiscamie Air Service), or from Baie du Poste, Mistassini (Waasheshkun Airways). The Eastmain River provides the best landing sites for property access.

The property consists of 160 contiguous claims (5202267 to 5202426 inclusive) covering 2560 hectares. In August, 1999, 105 km of grid lines were cut on the property, at 100 metre line separations and 25 metre station separations.

3.0 PREVIOUS WORK IN THE AREA

There have been few geological and prospecting activities in the immediate property area beyond that which was done by Windy Mountain Exploration Ltd. from 1990 to 1999. Regionally, the most significant exploration activities have been concentrated on the area surrounding the MSV Resources gold-copper deposit located 45 km east of the Eastmain Zinc property, and on the Windy Mountain Exploration Ltd. Macleod Lake property, 20 km southeast of the map area. For a detailed accounting of previous work, the reader is referred to Winter (1999).

In 1990, Windy Mountain Exploration Ltd. commissioned a helicopter bourne combined magnetometer, VLF and electromagnetic (EM) survey that covered the present claims. A ground follow-up program in August and September 1990 investigated 45 combined EM-magnetometer targets and identified five areas containing ten targets of moderate to high potential for VMS-type mineralization. Four (4) of these conductors (Fig. 2) lie within the claim group, and were labelled 2-4, 2-5, 2-8 and 2-9 (Prior, 1991).

In 1996, a program of ground VLF-EM surveying and Beep Mat prospecting was carried out in the Long Lake and Eastmain River greenstone belt in the area of the subject property. This was followed up by the drilling of five (5) short drill holes totalling 249.8 m.

Windy Mountain Explorations Ltd. did additional work in this area in 1997. A small budget, helicopter-supported prospecting program further evaluated the VMS potential of the greenstone belt. The 1997 program resulted in the discovery of five, large (1-2 m) angular boulders mineralized with pyrrhotite, sphalerite and minor chalcopyrite, bornite and pyrite. Zinc assays ranged from trace to 5.5% Zn. Approximately 500 m to the northeast, outcropping mafic metavolcanics carry zinc mineralization averaging 1% Zn. Because of this discovery 160 claims (2560 ha) were staked to cover the mineralized boulders and about 7 km up-ice.

In October 1997 the Eastmain Zinc property was staked for Windy Mountain Exploration Ltd. (160 claims). In August 1999, 105 kilometres of exploration grid was cut and a 1:2500 geological mapping program was completed.

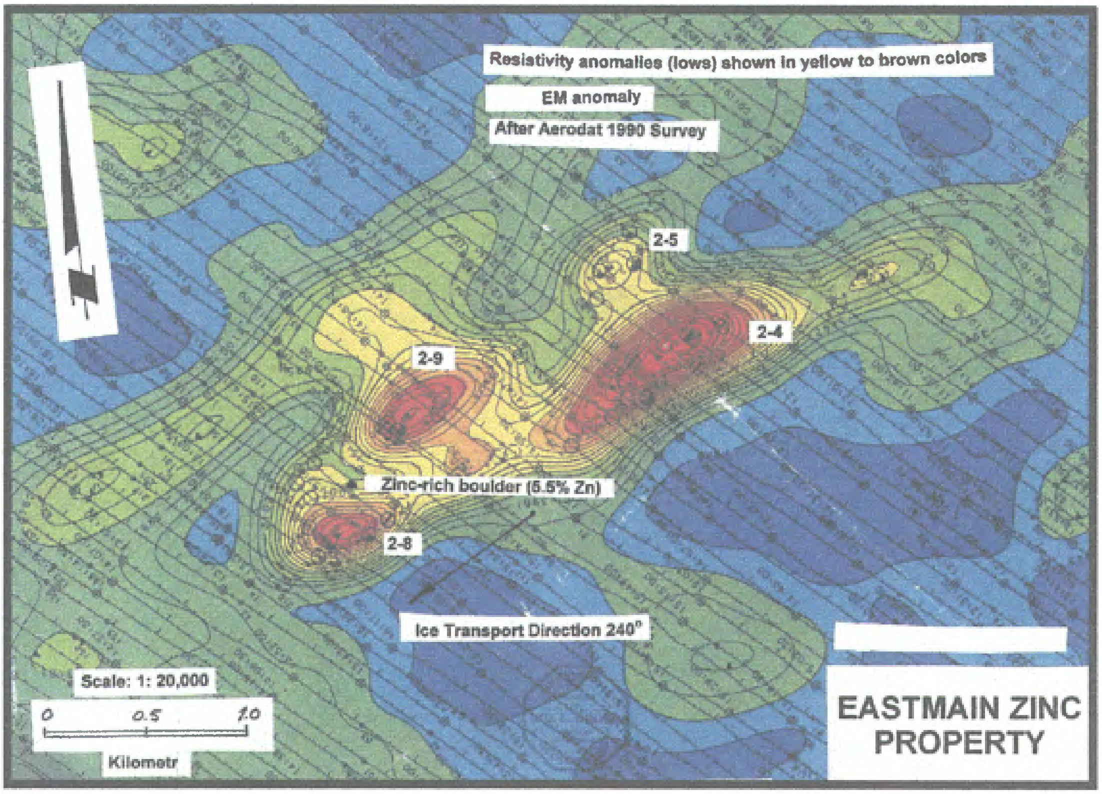

Figure 2. Eastmain Zinc Property Airborne EM and Resistivity Map (from Winter, 1999).

4.0 REGIONAL GEOLOGY

The following section on the regional geology is taken from Winter (1999):

"All of the rocks in the area are considered to be of Precambrian age and lie within the Superior Province of the Canadian Shield. Avramtchev (1983) compiled the results of all of the regional geological work that had been done in the area. This work was of a broad reconnaissance nature and has been presented in reports by Eade (1966), Chown (1971) and Hocq (1976 and 1985). The regional geology is shown in Figure 3 after Hocq (1985) with modifications by the writer based on the airborne magnetic patterns, broad reconnaissance helicopter work by the writer in 1982 and work reported by Fougues and Schumacher (1979).

Multistage deformation accompanied by amphibolite grade metamorphism has affected all units in the area. In the western part of the area, the general structural trend is east-west and is considered to represent Archean basement rocks with an age greater than 2400 Ma years (Fougues and Schumacher, 1979). In the north-central part of the region the structural and magnetic trends are northwesterly and this area was considered by Fougues and Schumacher (1979) to be a sedimentary basin which had been filled with metasediments and metavolcanics and then metamorphosed. This trend truncates the east-west trend and these units are connsidered to lie disconformably on the Archean units to the west. This basin, referred to as *the Laguiche basin was deformed by the Belmorian Progeny (Fougues and Schumacher, 1979). The age of the sediments and the deformation would probably be Aphebian based on this interpretation.*

The southern part of the area where the subject property is located is underlain by units with an east-west to east-northeast trend which appears to be Superimposed on the northwest trend of the Laguiche units to the north. The east-northeast trend may be Aphebian in age with the structural features being developed during an early Hudsonian deformation since it overprints the Beimorian trend and in turn is overlain by the Otish sediments to the east. This east-northeast trend is approximately parallel to the Grenville front and there may have been some latter activation during the Grenville orogeny.

The Mistassini dykes which strike northwesterly and crosscut the gneisses underlying the area are

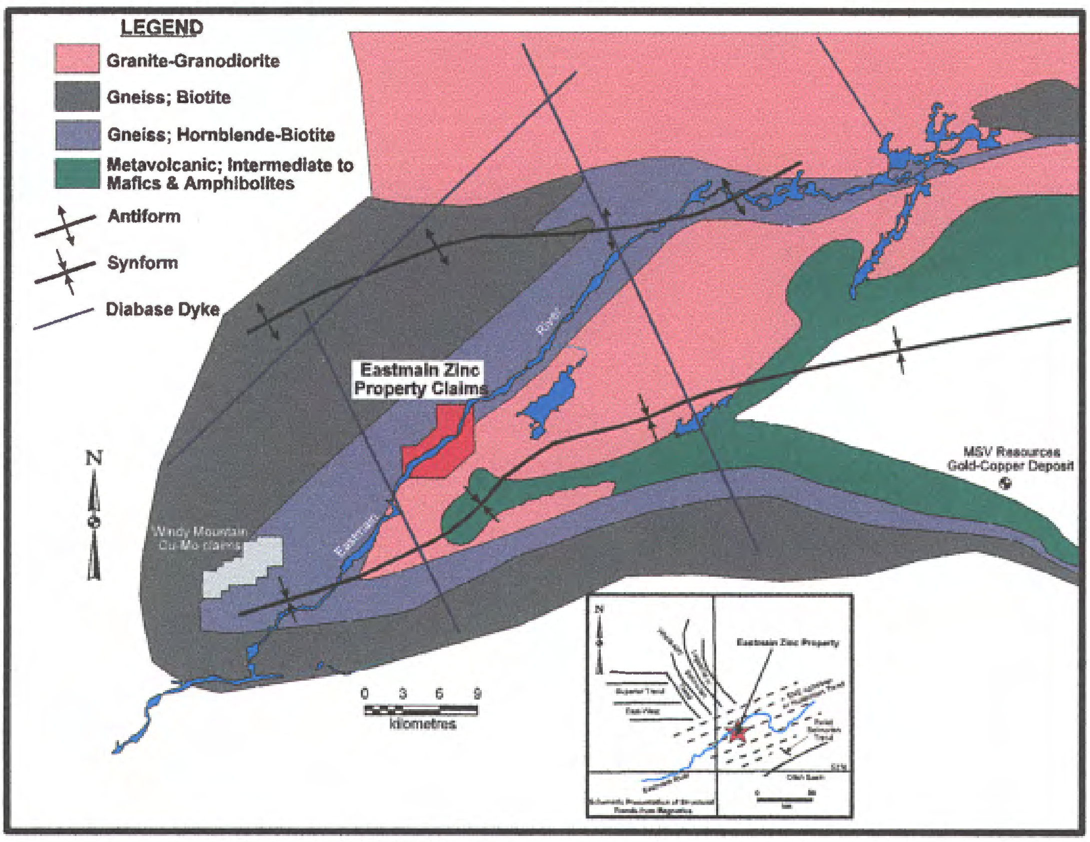

Figure 3. Simplified Regional Geology Map after Hocq (1985), and Modified after Winter (1999).

bracketed by dates of 1926 and 1960 Ma (Wanlesss, 1972). The Otish dyke swarm, which cuts the Otish Group sediments, has been dated, although not satisfactorily, at 1465 Ma. The maximum phase of the Hudsonian deformation is placed at approximately 1735 Ma (Douglas, 1970)

At the present time, due to the lack of absolute age determinations, most broad regional maps show *poorly defined features to which an Archean age has been assigned (Avramtchev, 1983).*

The main geologic feature in the property area is a major regional synformal structure opening and plunging to the northeast as shown in Figure 3. The central core of the syncline consists of mafic metavolcanics which increase in volume to the east and which are overlain by felsic metavolcanics further east of the Eastmain River. Underlying the metavolcanics is an area of granite to granodiorite containing biotite and/or hornblende and zones of migmatite. Muscovite pegmatites have intruded the felsic intrusives. Wide-scale reconnaissance work by the writer in 1982 (Winter, 1982) indicated that there were also areas of felsic to intermediate to mafic metavolcanics enclosed within areas mapped as gneisses.

The units have been folded about east-northeast trending fold axes which form a series of parallel antiforms and synforms which generally plunge to the east- northeast.

A number of topographic lineaments trend east-northeast and southeast- northwest. These are interpreted to represent bedrock Structures.

Diabase dykes trend northwesterly and crosscut all gneiss units. In turn, late Abitibi diabase dykes trend northeasterly through the area, cut all rock types and are dated at approximately 1100 Ma."

5.0 PROPERTY GEOLOGY

Outcrop geology consists of a relatively massive, intensely foliated, east-west striking amphibolite unit bordered to the north by a medium grained hornblende-biotite gneiss, and intruded to the south, northeast, and west by medium to coarse grained granite to granodiorite intrusions (1:4000 scale property map located in the back of the report). Although textures suggesting a volcanic origin were not observed, it is believed that mafic volcanic flows represent the amphibolite protolith. This is based on the observance of a probable interflow sediments (now metamorphosed to a cummingtonite-grunerite porphyroblastic amphibolite unit), and a 2 km unit of interflow sulphide facies iron formation.

East-west striking granitoid and granitic pegmatite dykes, emanating from the granitoid body to the east of the map area, intrude the amphibolite parallel to foliation. The abundance and size of dykes increase toward the granitoid contact. In the southern portion of the property, an east-west striking olivine diabase dyke intrudes the amphibolite just north of the southern amphibolite/granitoid contact.

Overall, the penetrative foliation exhibited by the amphibolite strikes east-west and dips subvertically to 70°N (averaging ~60°N). No faults are inferred to lie within the property, however, considerable deformation and brecciation of the amphibolite was observed in association with both the northern and southern granitoid contacts. Structural evidence for a fold closure within the northwestern portion of the map area may be presumed based on opposing foliation dip measurements; however, reconnaissance traverses were not carried out off the grid to confirm this. In addition, it should be noted that extreme variations in foliation attitudes were also observed close to intrusive contacts.

Outcrops of intermediate and felsic volcanic flows and pyroclastic rocks, as well as evidence of significant hydrothermal alteration, both common to classic VMS settings, were not observed.

5.1 Amphibolite (Mafic Metavolcanic Rocks)

Amphibolite outcrops are found throughout the central portion of the property (1:4000 scale property map located in the back of the report). In general, they are fine to medium grained, dark grey to greenish grey on fresh surfaces (1:4000 scale property map, Pict. A), and foliated, consisting predominantly of elongate prismatic hornblende crystals (Plate 1), with lessor anhedral plagioclase and anhedral to subhedral epidote. Alignment of hornblende crystals defines the intense foliation (Plate 1), indicating a syntectonic origin. Some outcrops contain fine grained layers of roughly equal amounts of hornblende and plagioclase (Plate 2), in places imparting a granoblastic texture to the rock. Such layering in amphibolites, of alternating mafic-rich and felsic-rich bands, parallel to a tectonic foliation, is due to metamorphic differentiation (Spry, 1983). Bands of coarser grained material were also observed (1:4000 scale property map, Pict. M), and consist mostly of euhedral to subhedral hornblende (Plate 3).

The amphibolite unit strikes roughly east-west, dipping subvertically to steeply to the north. A well-developed foliation, parallel and subparallel to strike, is characteristic of all mafic metavolcanic rocks. Given that primary textures have not been preserved, it is believed that the dominant foliation direction reflects the strike of the former metavolcanic rocks.

Amphibolite mineralogical textures are consistent with moderate-to-high grade regional metamorphism (amphibolite facies), as defined by the dominance of hornblende and presence of plagioclase and epidote.

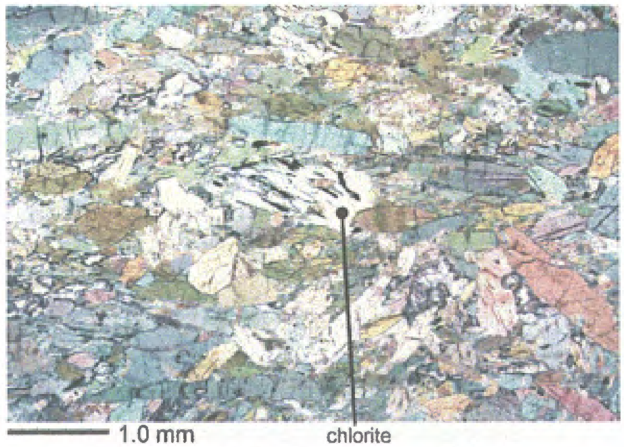

Plate 1. Photomicrograph of amphibolite (plane light). The elongate prismatic, pleochroic, crystals are hornblende. Note the absence of plagioclase. Sample MB3.

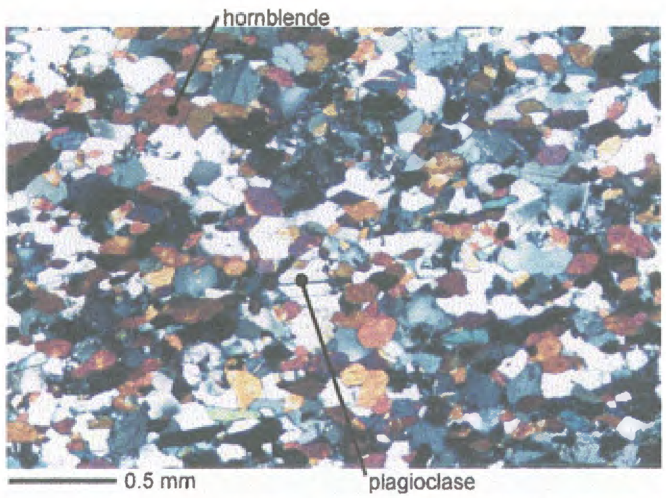

Plate 2. Photomicrograph of granoblastic textured amphibolite (polarized light). Note the equal abundance of amphibole and plagioclase. Sample MB4

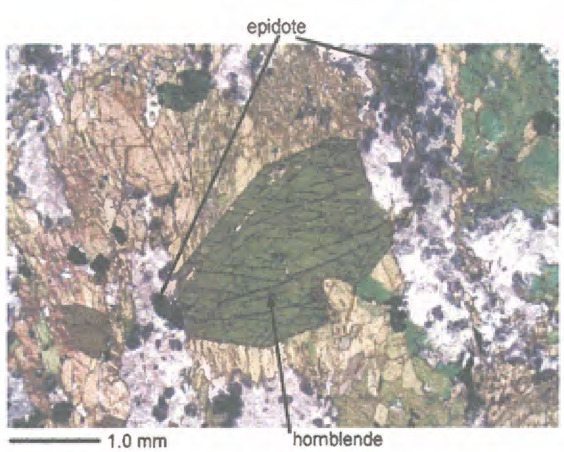

Plate 3. Photomicrograph of medium grain amphibolite. The light coloured groundmass consists of very fine grained amphibole and epidote. Sample MB10.

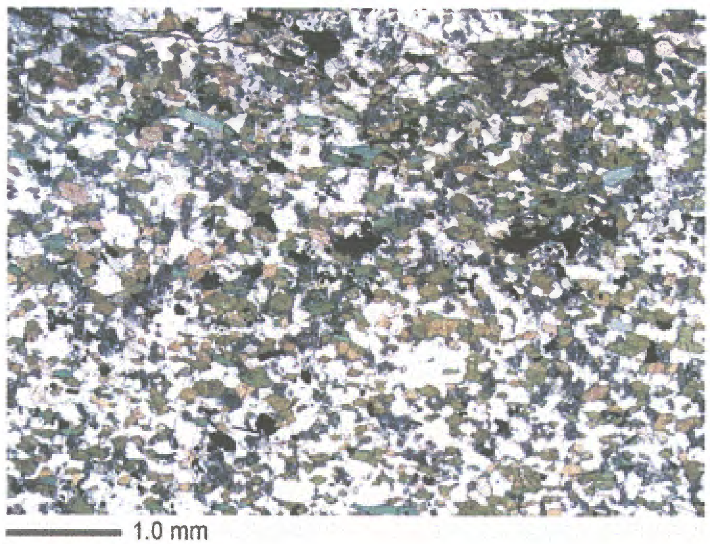

Plate 4. Photomicrograph (plane light) of granoblastic textured amphibolite (metamorphosed interflow sulfide facies iron formation). Sample MB4

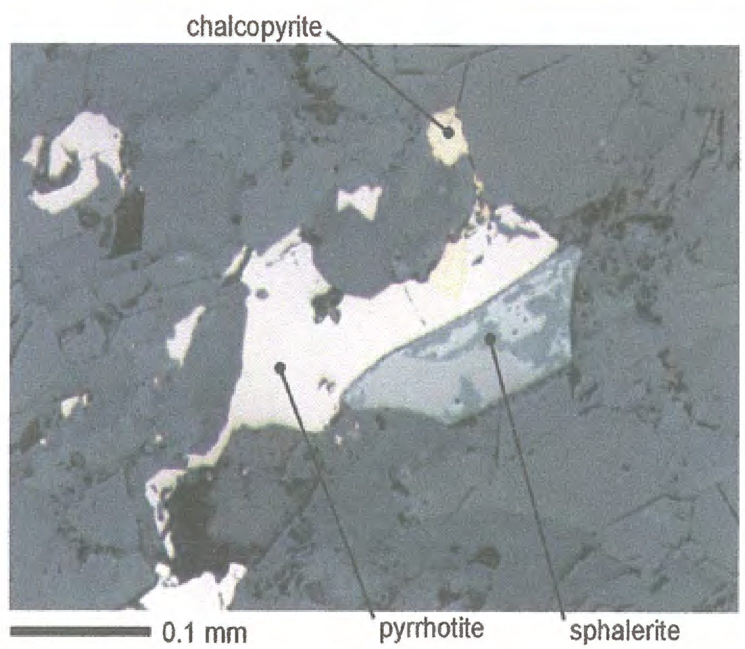

Plate 5. Photomicrograph (reflected plane light) of iron formation showing the mineral association: pyrrhotite, sphalerite and chalcopyrite.

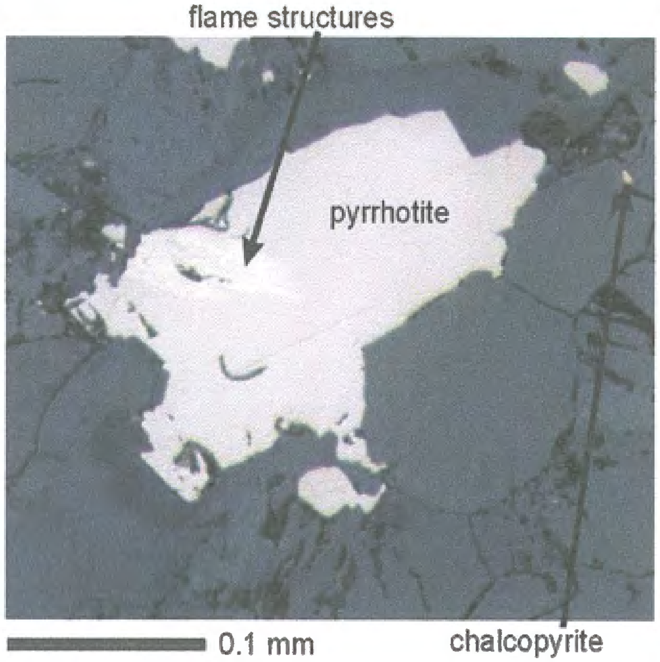

Plate 6. Photomicrograph (plane reflected light) of iron formation. Note the pentlandite exsolution flame structure. Sample MB4.

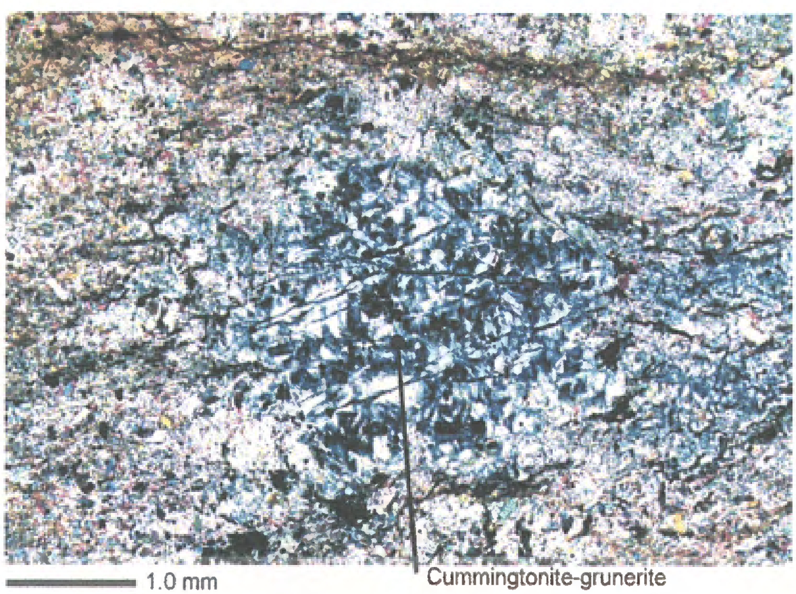

Plate 7. Photomicrograph (polarized light) of an interflow metasedimentary rock showing the rounded cummingtonite-grunerite porhyroblast. SampleRC4

5.2 Metasedimentary Rocks

Two thin units of probable metasedimentary rock lie in the western and west-central portion of the map area (1:4000 scale property map) where they occur as presumed interflow metasediments, oriented parallel to the foliation of the host amphibolite (striking roughly east-west and dipping ~50°N). Although, by mineralogical definition, they are true amphibolites, their distinctively different outcrop appearance compared to typical map area amphibolites, suggests that their protoliths are different. For instance, it is common for interflow sediments to have virtually identical compositions to the surrounding host rock, yet be quite different in terms of their grain sizes and primary textures. Thus, once metamorphosed, the interflow units and flows would have a similar mineralogy, as well as some recognizable differences. This is the proposed argument for the units observed in this map area.

5.2.1 Sulphide Facies Iron Formation

The larger of the two units is the iron formation, located in the west-central portion of the property (bounded by grid lines 13+00W & 8+00E, and stations 11+25N & 6+00N). It is a distinctive pyrrhotite-rich conformable unit within the amphibolites, only a few metres wide (1:4000 scale property map, Pict. N), and traceable for about 2 km. It can be best seen in outcrop at L 11+00 W, 10+50 N (1:4000 scale property map, Pict. F), where it is exposed along the cliff face of a large amphibolite outcrop. Its gossanous appearance, and associated quartz veining, makes it easily identifiable, and the abundance of disseminated pyrrhotite imparts the rock's strongly magnetic character.

Fine grained, anhedral plagioclase (0.1 mm to 0.3 mm) and subhedral to euhedral hornblende (0.2 mm to 0.5 mm) occurs in roughly equal amounts, collectively making up 90 to 95% of the rock (Plate 3,4). Pyrrhotite is the dominant sulphide, followed by sphalerite and chalcopyrite. Pyrrhotite typically occurs as small anhedral crystals (0.1 mm to 1.0 mm) disseminated throughout the rock (Plate 5,6), as concentrated masses, and as veinlets that cut parallel to, and across, the foliation. In some locations, more massive pyrrhotite mineralization was observed, accounting for upwards of 15% of the rock. Sphalerite ranges in abundance from <1% to 2% (upwards of 5% sphalerite was observed in some large boulders found within a few hundred metres of the unit), and occurs as small (<0.3 mm) disseminated crystals (ordinarily in association with the other sulphides; Plate 5), and less commonly in veinlets crosscutting the foliation. Chalcopyrite is a minor phase, either as very small anhedral crystals (<0.05 mm) disseminated throughout the groundmass, as blebs within larger pyrrhotite crystals (Plate 5), or filling fractures. Very small flame textures were observed in some pyrrhotite crystals (Plate 6), and probably represent the exsolution of pentlandite.

The greatest concentration of sulphide mineralization on the property occurs within the pyrrhotite-rich iron formation. The unit also corresponds to the northeast trending AEM anomaly and IP survey anomalies. It is believed that the sulphide mineralization within the iron formation is responsible for the geophysical anomalies, and that this unit is most likely the source for the sulphide-rich boulders that assayed anomalous zinc values as part of the 1996-97 exploration program.

5.2.2 Cummingtonite-Grunerite Porphyroblastic Unit

Northwest along strike of the iron formation, lies a thin discontinuous unit of fine grained, amphibolite schist (L15+00W, 11+50N), hosting porphyroblasts of cummingtonite-grunerite series amphibole, and disseminated pyrrhotite (1:4000 scale property map, Pict. C). The outcrop area is relatively small (160 m long by 30 mm at its widest point), but the exposure is quite good, as most of the vegetation in the area was recently burnt off. Porphyroblasts possess a positive relief on the greenish-grey weathered outcrop surface, and are roughly circular, with an average diameter of about 0.5 cm. Their post-tectonic character is shown by their discordant grain boundaries with the foliation (Plate 7). The fine grained groundmass consist of hornblende microlites, and fine grained, disseminated, pyrrhotite. It is believed that this unit may represent a metamorphosed interflow sedimentary rock, possibly conformable with the sulphide facies iron formation. The presence of abundant cummingtonite-grunerite suggests a rock more magnesian than the surrounding amphibolites. For instance, magnesium-rich chlorite, when exposed to medium grade metamorphic conditions, goes to cummingtonite-grunerite. It is therefore possible, that the immediate precursor rock was one rich in chlorite, perhaps a chlorite schist.

5.3 Olivine Diabase Dyke

A 30m wide olivine diabase dyke intrudes the amphibolite unit near the southern amphibolite/granitoid contact, striking east-west roughly parallel to the said contact. The best exposures are located at L 12+00E, 0+50N. Relatively unaltered olivine phenocrysts make up about 10 to 15% of the weakly magnetic rock. The rock itself is massive, dark grey, and shows no visible signs of deformation or alteration.

5.4 Granitoid Intrusions

Granitoid intrusive bodies border the amphibolite unit to the northeast, south and west. They are typically medium to coarse grained, ranging in composition from granite to granodiorite. The southern intrusion is a pink granite consisting of pink, euhedral to subhedral potassium feldspar crystals (up to 1.5 cm), anhedral quartz (<0.5 cm), and platy biotite aligned parallel to foliation. Foliation is best developed near the contact regions with the amphibolite, where it parallels the east-west contact and dips steeply to the north. More massive granites occur south of the contact within the main body of the intrusion, where medium to coarse grained pegmatite pods are a common feature. Instances of barren, medium grained, quartz veins within the granite were also observed in association with the contact zone (intruding along the foliation planes), as were veins and pods of quartz, granite, and granite pegmatite within the contact zone amphibolite (1:4000 scale property map, Pict. L). Outcrops of granite porphyry (potassium feldspar phenocrysts) were observed along the shoreline of a pond located at L6+00 W, 5+00N; no other occurrences were noted on the property.

A medium grained granite to granodiorite intrusion, possibly belonging to the Lac Cadieux Granite, borders the amphibolite to the northeast. Here the contact relationships are different from those observed in association with the southern granite. In particular, several granodiorite dykes, emanating from the main mass to the east, intrude the amphibolite parallel to foliation, and the abundance and size of dykes increases with proximity to the main body. A well-developed foliation in these rocks mimics the penetrative foliation of the amphibolites. In addition, within the contact zone, several large amphibolite masses were observed surrounded by the host granitoids. Many of these maintain their original foliation, while others appear to be rafts. Most occurrences are inundated with granitoid and pegmatite dykes of various sizes. Line 30+00E traverses, what is believed to be, the main body of the intrusion. Outcrop exposure is excellent, with upwards of 90% of the rock being medium grained, weakly to non-foliated granitoid.

5.5 Hornblende Biotite Gneiss

Along the shoreline of the Eastmain River, between lines 16+00W and 8+00W, lies the contact between amphibolite and hornblende-biotite gneiss. The gneiss is strongly foliated (230/62^{o}N) with a well-developed gneissosity. Distinctive glacial striations are present on several shoreline outcrops, indicating an ice transport direction of 240^{o}.

6.0 STRUCTURE

It appears that there has been minor displacement of stratigraphy related to intrusion and dike emplacements, and/or subsequent crustal disturbances; however, there is some evidence for an east-west trending anticline. Structural evidence for a fold closure within the northwestern portion of the map area may be presumed based on opposing foliation dip measurements. However, reconnaissance traverses were not carried out off the grid to confirm this. In addition, it should be understood that extreme variations in foliation attitudes were also observed close to intrusive contacts (see amphibolite outcrops located on L18+00 between 15+00N and 16+00N - 1:4000 scale property map). On the other hand, Winter (1999) cites regional mapping and reconnaissance work by Hocq (1985) and Prior (1990, 1991) as evidence for the presence (on the property) of a northeast plunging synformal structure. However, confirmation or rejection of such a feature, based on the results of the current program, was not possible, given the restricted coverage of the exploration grid.

Throughout the main body of the amphibolite unit, the foliation is relatively constant as is its undisturbed character. However, intense deformation, and in places brecciation, are observed in association with all amphibolite/granitoid contact zones. In particular, upon approaching said contacts, the incidence of intrusive granitoid, pegmatite, and quartz veining and pods increase. Closer to the contact, amphibolite outcrops show intense (tight) chevron folding (1:4000 scale property map, Picts. J,A), and the development of quartz-rich augen structures (1:4000 scale property map, Pict. B). Where exposures permit, brecciation of the amphibolite can be observed next to the granitoid contacts, as well as a dramatic increase in quartz and granitoid veining. The best exposures of this are located at L9+00W, 17+75N, consisting of intensely brecciated amphibolite with a granitic matrix (1:4000 scale property map, Picts. H,I), and several granitic dykes intruding along amphibolite foliation planes. Although movement along these contacts probably occurred, the lack of geological markers in the amphibolite (and good exposures) made the recognition of such events impossible to verify.

7.0 ECONOMIC POTENTIAL

The presence of felsic and intermediate volcanic rocks and pyroclastics in the local volcanic sequence (>150 m), bimodal volcanism, synvolcanic structures, exhalative horizons (signifying a time break in eruptive activities), epidote alteration, chloritization, significant sodium depletion and potassium enrichment, as well as sulphide mineralization, are all considered positive indicators for the presence of a large VMS deposit (Barrie et al., 1993). The fact that the Eastmain property possesses none of these characteristics, except for sphalerite mineralization associated with the iron formation, suggests that the property is a poor prospect for hosting a large tonnage VMS deposit. Although sphalerite is present, its concentration in crosscutting veinlets suggests remobilisation and concentration, probably related to the metamorphic event. Sulphides have low hardness, weak bonding, excellent glide properties, low melting points and relatively high solubilities in intergranular water, all of which makes mobilization and recrystallization in such a metamorphic environment a distinct possibility.

Although the geological setting is not consistent with that typical of classic VMS deposit types (Kuroko, Mattabi, and Noranda), there are some similarities to the less common Besshi-type deposits (ex. Besshi deposit, Japan; Windy Craggy deposit, B.C.). These deposits are associated with sequences of mafic volcanic rocks and pelitic-clastic sedimentary rocks, of which the volcanic component is dominant. Some deposits also contain a small percentage of felsic rocks, but the presence of said rocks types is not a classification requirement. Just like the other large VMS deposit types, broad regions of significant alteration are a characteristic, and, as previously stated, such evidence was not observed at the Eastmain River property. In this type of metamorphic terrain, alteration of that nature would appear as zones in the amphibolite rich in secondary aluminosilicates, such as garnet, anthophyllite, andalusite, kyanite, and possibly cordierite. None of these minerals were observed on the property.

The lack of observed VMS style alteration, mineralization and geological setting, and the fact that the strongest geophysical anomalies can be explained by the thin unit of iron formation, offers little support for continued work on this property. Table 1 contains possible exploration criteria for large Archean VMS deposits (>10 Mt; modified after Gibson and Kerr, 1993), and whether or not the Eastmain River Zinc property fulfills such requirements.

Table 1. Exploration Criteria for Large Archean VMS Deposits.

Favourable Criteria	Present at Eastmain Zinc Property	
	Yes	No
Numerous pyrite-sphalerite sulphide occurrences	✔ :actually pyrrhotite and sphalerite mineralization	
A large, multiphase metaaluminous synvolcanic intrusion that contains porphyry Cu, Au mineralization or epithermal style veins of sphalerite-silver, chalcopyrite-pyrite and shows evidence of alteration (sericite, chlorite, epidote-quartz, or hydrothermal biotite-k-feldspar)		✔
Sericite (pyrophyllite)-quartz-(mg-chlorite) altered (silicified) and base metal-anomalous, fragment-dominated successions. Areas of chloritic (Fe enriched) and possibly aluminous alteration		✔
Widespread areas of broad, crudely stratabound, semiconformable sericite ± chlorite (Mg and Fe rich) and Fe-carbonate alteration that may extend for kilometres along strike.		✔
Intercalated wackes, argillites and/or carbonaceous argillites overlying fragmental volcanic successions		✔
Proximity to major structures, particularly those that bound and control volcanic features such as grabens and caulderas.		✔
Abundant felsic volcanic rocks, in particular submarine pyroclastic flows.		✔

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STATEMENT OF QUALIFICATION

I, Michael James Byron do hereby certify:

1. that I am a geologist and reside at 2459 Sanfrancisco St, Sudbury, Ontario, P3A 2G8,
2. that I graduated from Geneseo State University, Geneseo, New York, in 1993 with a Bachelor of Science degree in Geology, and in 1990 received a Master of Science degree in Geology from Laurentain University, Sudbury, Ontario, and in 1999 received a Doctorate of Philosophy degree in Geology from Carleton University, Ottawa, Ontario,
3. that I am a member of the Prospecting and Developers Association of Canada, and a Registered Geoscientist in Saskatchewan (P.Geo.),
4. that I have practiced my profession for the past 15 years,
5. that this report is based upon geological mapping that myself and Mr. Randy Clark performed on the Eastmain Zinc Property during August of 1999,
6. that as of the date of this certificate I am not aware of any material fact or material change with regard to the property that would make the report misleading,
7. that my report on the Eastmain River Zinc Property of Windy Mountain Explorations Ltd. is based on my general knowledge of the geology of the area, my geological mapping of the property, and a review of published and unpublished information on the property,
8. that I have no direct or indirect personal interest in the Eastmain Zinc property of Windy Mountain Explorations Ltd,
9. that I have written this report as a totally independant geologist.

Dr. Michael J. Byron, P.Geo.
September 1999