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Report on the Electromagnetic Survey of part of the property of NEW METALORE MINING COMPANY LIMITED Robertson Twp., Porcupine Mining Div., Northern Ontario

by

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INTRODUCTION

The Robertson Township property of New Metalore Mining Company Limited covers a copper discovery on which a certain amount of exploration including geophysical work and diamond drilling has recently been done.

A magnetometer survey over a limited area of 190.5 acres in the vicinity of the showing was carried out by our organization in October 1954 and revealed a number of interesting anomalies; it was later decided to cover the same ground with electromagnetic measurements in the hope of obtaining direct indications of deposits of massive sulphides.

ELECTROMAGNETIC SURVEY

The field work was carried out in March 1955 and measurements were made along the lines cut for the previous magnetometer survey. A total of 623 stations were occupied at 50-foot intervals along the lines exclusive of 58 detail readings in the vicinity of the main showing.

The standard, vertical sending-loop technique was employed, the sending loop alway being pointed as accurately as possible at the receiver. Normally, in an undisturbed field, the receiving loop, when held horizontally, i.e. at right angle to the sending loop, does not pick up any electromagnetic signals. If a conductor is present in the ground, a complex electromagnetic field results, forming an angle to the horizontal. The angle of the total electromagnetic field with the horizontal is termed a dip angle, measurements of which serve as a means of detecting the presence of electrical conductors.

RESULTS OF THE SURVEY

All the results of the survey are compiled on the accompanying map drawn at a scale of 200 feet to the inch. The figures plotted near each measurement station show the observed dip angles of the electromagnetic receiver coil in degrees; these angles are also represented graphically by profiles drawn at a scale of 5 degrees to the inch.

First of all, it must be clearly stated that the survey did not reveal the presence of any anomaly definitely attributable to a large deposit of sulphides; at a number of points, however, the dip angle of the induced electromagnetic field showed minor variations, some of which could indicate sulphide mineralization.

The highest values were encountered in the vicinity of the main showing, particularly a short distance to the south of it on lines 0 and 3 W, with dip angles ranging up to 10 degrees. Due to the absence of clear-cut cross-over or change in the direction of the dip angles,

the location and shape of the conductors possibly responsible for these reactions cannot be accurately determined, but in general it is recommended that the area just south of the showing be investigated with special care and that drilling be extended in that direction if surface exposures are lacking or insufficient.

A low, but well-defined cross-over occurs at station S-7 on line 6 E, close to a showing reported to contain pyrite and within the limits of a magnetic anomaly near an assumed transverse fracture. Drilling had been recommended at this spot on the basis of the magnetic results to investigate the area of intersection between the probable fault and the magnetic anomalies; the weak electromagnetic indication is an added inducement to explore this particular section.

A change in the direction of the dip angles is noticeable on every line at or near the fault F_1F_1 assumed on the basis of the magnetic results; in spite of the low intensity of the electromagnetic indications, the fact that they are repeated line after line constitutes strong support for the magnetic interpretation and confirms the existence of a transverse fracture in this approximate location.

With the possible exception of the above, the weak variations of dip angle encountered over the area surveyed are not believed significant; they might, however, be given some attention where they occur in favourable geological conditions and some of them would be tested by holes already proposed for other reasons if these were drilled from slightly changed and adjusted locations.

It should be noted here that even in sections where electromagnetic measurements give no indication of electrical conductors, the possibility of finding sulphide deposits is not altogether ruled out. It should be kept in mind that, at today's prices, a relatively very weak disseminated mineralization may make ore and not be massive enough to be picked up by any kind of electrical prospecting device. Furthermore, the depth of penetration of any surface mining geophysical method is necessarily limited to a few hundred feet.

SUMMARY AND RECOMMENDATIONS

The electromagnetic survey did not give positive indication of the presence on the New Metalore property of large deposits of massive sulphides, but disclosed a number of small variations, some of which may prove of economic importance.

Shown on the accompanying map are 8 diamond-drill holes numbered D.D.1 to D.D.8, which had first been recommended to test the most promising indications of our magnetometer survey; some of the locations have now been slightly altered so as to explore at the same time certain weak electromagnetic variations. A new boring marked EM-1 is suggested to the south of the main showing between lines 0 and 3 W where the highest electromagnetic values were obtained.

Respectfully,

D. Moseley