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McPHAR GEOPHYSICS LIMITED

GENERAL NOTES ON THE McPHAR ELECTROMAGNETIC METHOD

Electromagnetic measurements are made in terms of "dip angles" and are recorded in degrees. The dip angles measure the amount of distortion of the primary (applied) electromagnetic field caused by secondary fields associated with currents induced in sub-surface electrical conductors. These angles are plotted in degrees on the accompanying maps either beneath or to the right of the station from which each observation was taken. Where a minus sign precedes a number, the angle of dip is to the west or south; the absence of a sign preceding a number indicates an easterly or northerly dip angle.

Transmitting coil locations are termed "setups"; each one being marked on the maps with a triangle and bearing a code number. Several lines are traversed with the receiving coil when the transmitting coil is at any one location; the readings on these lines are related to the corresponding setup by the code at the end of each series of readings.

"Conductor-axes are marked on the maps according to the legend. They are, in general, vertical projections to the surface of the upper extremities of electrically-conductive bodies.

Electromagnetic anomalies can result from sulphide mineralization, graphitic schists, carbonaceous sediments, and on occasion, fault zones. Apropos of this it is to be noted that disseminated sulphide mineralization consisting entirely of discreet particles is not a conductor at the normal frequencies used for practical geophysical

exploration. Consequently, exploration of a property subsequent to an electromagnetic survey should be based not only on the indicated electromagnetic anomalies, but should take into account all the geologic and physiographic data that can be obtained.

McPHAR GEOPHYSICS LIMITED

REPORT ON THE ELECTROMAGNETIC SURVEY OF THE "KELLAR ISLAND OPTION", CARIBOU LAKE, ONTARIO FOR CENTRAL MANITOBA MINES LIMITED

1. INTRODUCTION

At the request of Mr. Fenton J. Scott, geologist for Central Manitoba Mines Limited, a dual frequency electromagnetic survey was conducted on the above company's "Kellar Island Option" a group of some thirty-nine claims. The work was done during February, 1956.

A showing of "low-grade copper and gold mineralization" located at the southwest end of Kellar Island is described by W. C. Gussow (Ontario Department of Mines, Vol. XLIX, Part VI). It was hoped that the survey by locating subsurface electrical conductors, would lead to the discovery of economically significant sulphide mineralization. Additionally there was the possibility of extending the known mineralization if it were sufficiently conductive to be detectable by the electromagnetic method.

The reconnaissance geology of the Caribou-Pikitigushi area is covered by W. C. Gussow's report (Ontario Department of Mines, Vol. XLIX, Part VI) and accompanying map No. 49g. The results of a ground magnetometer survey were made available to us by Central Manitoba Mines Limited to aid in interpreting the electromagnetic results.

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2. PRESENTATION OF RESULTS

Field results and indicated conductor axes are plotted on the accompanying map No. E4253. The outside boundary of the claim group is also indicated.

3. DISCUSSION OF RESULTS

Although the exact location of the showing is not known to us it is believed to be in the vicinity of the zero reference point of the grid. There are no anomalous indications within at least a thousand foot radius of this point. It appears that either the sulphide content of the showing is too low or the showing is too small to be detectable by this method.

Four anomalous sections have been outlined by the survey. These have been labelled alphabetically and will be discussed in order.

Zone A is the most extensive series of conductors on the group and lies along the northeast edge of the property from 25+50E line 32N to 17+00E line 8S. There is considerable variation in apparent conductivity and depth along its length. Several bands of conductive material over a total width of up to 600 feet are indicated on lines 12N and 16N. Due to these several bands, a reliable dip estimate is not possible. The regional dip according to W. C. Gussow's report is NE 45°. The conductivity is best on lines 24N to 32N inclusive and there appears to be only a single band. One hole (DDH 3 attached schedule) has been recommended to check Zone A on line 28N and a second hole (DDH 2) on line 2S. Without considerable detail surveying it is not possible to predict the exact structural

63.742

relationship of the several parallel conducting bands. Conductors at 24+50E and 28+20E line 12N show good conductivity and appear to be close to surface. These conductors are on the edges of an island mapped by W. C. Gussow as chiefly outcropping lavas. An examination of outcrop evidence if any, or short drill holes, would probably suffice to identify the cause of the anomalies in this section.

Zone B, lying east of the baseline from line 24N to line 32N consists of from three to six conductive zones across a width of about 800 feet. The most apparent correlation of dip angle profiles suggests a strike paralleling the baseline. This agrees fairly well with the strike of the lavas at the northeast end of the bay in Kellar Island shown on the geological reconnaissance map (O. D. M. 49g). Two drill holes have been spotted to cross section this zone on lines 28N and 24N (DDH 1 and DDH 4, attached schedule). The conductivity of Zone B in general is not so good as Zone A. The zone appears to terminate between lines 20N and 24N.

Zone C is that group of conductors lying between 14+90E line 20S and 12+50E line 32S. Some small angles on lines 12S and 16S suggest that Zone C may be a southward extension of Zone A. The conductivity is only fair and the zone does not appear to have any appreciable vertical extent. If axes at 14+90E line 20S and 12+00S line 24S represent he same conductor, an examination of the shorelines of the small islands between these points may serve to identify this anomaly. If it is not possible to account for the conductors in this manner, drilling may be

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warranted especially if the south end of Zone A encounters mineralization.

Zone D along the west margin of the property is probably the iron formation shown on W. C. Gussow's map along the north edge of the large island west of Kellar Island. Both the ground magnetic and electromagnetic results indicate this iron formation. In view of W. C. Gussow's comments regarding the iron formations of the Caribou Lake area, the zone is not considered to be of much economic significance.

McPHAR GEOPHYSICS LIMITED

F. W. McCamus,
Geophysicist.

F. T. Clifton,
Geophysicist.

Dated: March 8th, 1956.

ASSESSMENT DETAILS

PROPERTY: KELLAR ISLAND OPTION

SPONSOR: CENTRAL MANITOBA MINES LIMITED

PROVINCE: ONTARIO LOCATION: CARIBOU LAKE

TYPE OF SURVEY: Electromagnetic

LINE CUTTING MAN DAYS:	NIL	DATE STARTED:	February 4th, 1956
OPERATING MAN DAYS:	14	DATE FINISHED:	February 9th, 1956
CONSULTING MAN DAYS:	5	NUMBER OF STATIONS:	1257
DRAUGHTING MAN DAYS:	5	MILES OF LINE SURVEYED:	22.3
TOTAL MAN DAYS:	24		

CONSULTANTS:

F. W. McCamus, Geophysicist,
18 Chatfield Drive, Don Mills, Ontario.

F. T. Clifton, Geophysicist,
46 Berkinshaw Crescent, Don Mills, Ontario.

FIELD TECHNICIANS:

T. Burns, 948 Ribston Road, Port Credit, Ontario.

DRAUGHTSMEN:

G. Young, 7 Swiftdale Place, Don Mills, Ontario.

McPHAR GEOPHYSICS LIMITED

F. W. McCamus,
Geophysicist.

Dated: March 8th, 1956.

DRILLING SCHEDULE

DDH #1	5+50E line 28N	750' at 45°	NW along picket line
DDH #2	22+00E line 2S	650' at 45°	N20° W
DDH #3	27+00E line 28N	300' at 45°	NW along picket line
DDH #4	12+50E line 28N	750' at 45°	NW along picket line

McPHAR GEOPHYSICS LIMITED

F. W. McCamus,
Geophysicist.

Dated: March 8th, 1956.

REPORT ON MAGNETIC SURVEY

OF THE "KELLAR ISLAND OPTION" CARIBOU LAKE, ONT.

BY

CENTRAL MANITOBA MINES LIMITED.

INTRODUCTION.

In the course of exploration for base metal mineralization on the optioned claims, it was decided to conduct a low sensitivity magnetometer survey of the group, for the following reasons:

A. As an aid in the interpretation of results of a subsequent electromagnetic survey.

B. To indicate geological structure.

C. To delineate the boundaries of iron formation known to occur in the western part of the property, and to prospect for possible higher grade areas in that iron formation.

METHOD

Readings were taken at 100 foot intervals along picket lines spaced 400 feet apart. Base stations with established values were chosen at various points on the property, and these were checked at regular intervals during each day.

The instrument used in the survey was a Berg inclinator, with a sensitivity of 100 gammas per scale division.

For survey purposes, an assumed value of 700 gammas was used for the base station at 4S-6W.

RESULTS

The magnetic values of each station and contours of anomalous magnetic areas are shown on the accompanying map. Because of the rapid change and high values of readings in the iron formation, no attempt was made to contour this area, which is shown by diagonal hatching in the northwest section of the map.

DISCUSSION.

The overall magnetic picture indicates broad folding, with a change in strike from N60E in the western part of the property to N10E in the eastern sections.

Outside of the iron formation area, the only significant anomalies were encountered in the western part of the property. These are all weak, and are presumably due to low concentrations of disseminated pyrrhotite in zones running parallel to the geological trends. The fairly high reading of 6,400 gammas at station 12N-29E on claim KK 9956 can be directly attributed to a narrow pyrrhotite lens located here. Similar concentrations of pyrrhotite were encountered by drilling on claim KK 9930 underlying the anomalies shown.

In the iron formation area, large variations in magnetic values of successive stations was encountered, and no correlation between adjacent picket lines was possible. Some attempt was made to pick out significant zones by means of readings spaced at 25 foot intervals, but this proved abortive in costs, and not warranted by the results expected. If economic grade of iron should be encountered, it was felt that it could be easier delineated by geological mapping and conventional prospecting methods.

CENTRAL MANITOBA MINES LIMITED

F.J. Scott,
Geologist.

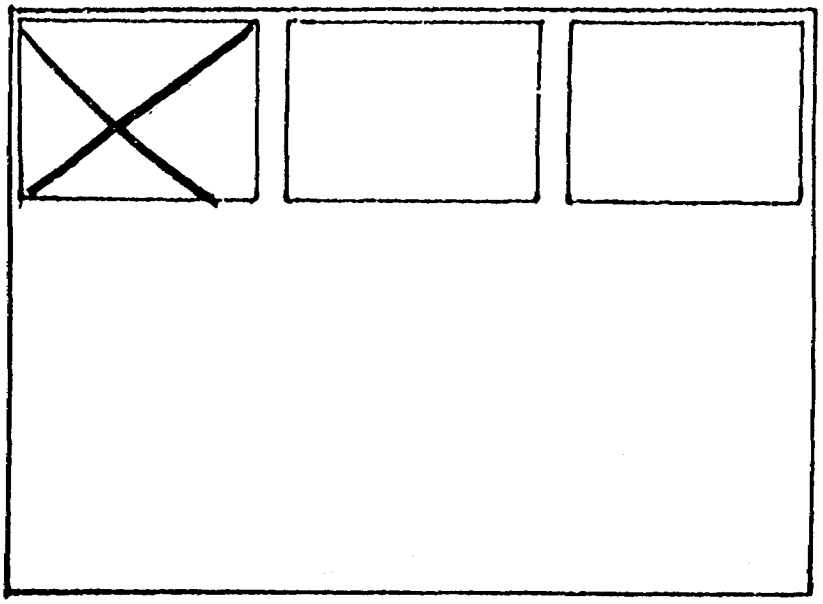
PROVINCE OF MANITOBA
F. J. SCOTT
REGISTERED ENGINEER

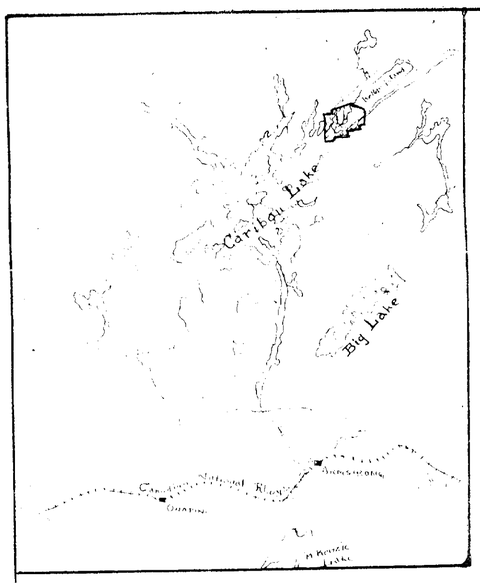
SEE ACCOMPANYING MAP(S) IDENTIFIED AS

52I/11SE-0018-AE#1

LOCATED IN THE MAP CHANNEL IN THE FOLLOWING SEQUENCE

(X)





KK 14398
KK.9930
K.K. 9931
KK 11193
KK 11190
KK 11260
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K.K. 9954
K.K. 11268
KK 11266
FORMATION
K.K. 11261
K.K. 11188
KK 11192
KK.11194
K.K. 9953
K.K. 9952
K.K. 10209
K.K. 10092
K.K. 11267
K.K. 11265
KK 11262
K.K. 11189
K.K. 9955
KK 9956
K.K. 11264
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K.K. 10211
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K.K. 14399
K.K. 10216
K.K. 10212
K.K. 10213
K.K. 10217
K.K. 14400
K.K. 10220
K.K. 10221
K.K. 10222
K.K. 14401

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-MAGNETOMETER SURVEY-
KELLAR ISLAND OPTION
CENTRAL MANITOBA MINES LTD.

JAN. 1956 SCALE 1"=400'

-LEGEND-

Base Station
Magnetic Station
Magnetic Contour
Claim
Claim Line

52 I/11SE-0018 A1, #1

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