INTRODUCTION:

Magnetometer and electromagnetic surveys have been carried out on a portion of the property of North Expo Mines Limited, underlain by the Montreal River. This work was conducted in the latter part of January, 1966.

A copper occurrence is located on the south shore of the Montreal River.

PROPERTY, LOCATION AND ACCESS

A contiguous block of 11 unpatented mining claims forms the property of North Expo Mines Limited in Cairo Township. The geophysical work was carried out on the following claims or portions thereof: MR 40564, MR 40565, MR 30884 and MR 37915.

The property is located in the south part of Cairo Township approximately two miles east of Matachewan, Ontario.

Highway 65 from Matachewan is located several hundred feet west of the Montreal River, thereby providing convenient access to the property.

HISTORY OF THE PROPERTY

Although geophysical work has been carried out on the land portion of the property, the writer is not aware of any previous work which has been conducted over the Montreal River.

The writer, in the summer of 1965, examined the two copper bearing shear zones along the south shore of the Montreal River on

.....2

HISTORY OF THE PROPERTY (Cont'd)

claim MR 30884. One shear zone which extends under the river is exposed by a series of trenches. Mineralization in the shear, which varies between a few feet and 25 feet wide, consists of pyrite, pyrrhotite, specular hematite and chalcopyrite in conformable stringers of blue and white quartz and schistose chloritized andesite.

A muck sample taken across the strike of the shear zone along the floor of the trench for a length of 23 feet assayed 0.52% copper, 0.005 oz. of gold per ton and nil in zinc.

GENERAL GEOLOGY

Outcrop along the steep shores of the Montreal River is abundant and growth consists mainly of poplar and birch.

Keewatin volcanic rocks are the oldest and most extensive in the Matachewan area. Timiskaming sediments form two parallel east-trending synclines in Powell and Cairo Townships. Intruding the Keewatin and Timiskaming formations are Algoman igneous rocks represented by dykes of syenite and equigranular and porphyritic granite. All of these rocks are intruded by north-trending diabase dykes.

Lying with marked unconformity upon the earlier Precambrian formations is the essentially horizontal cobalt conglomerate.

The Keewatin volcanic flows and pyroclastic rocks on the Matachewan property contain copper-bearing shear zones. Gold in

.....3

GENERAL GEOLOGY (Cont'd)

the Matachewan area is generally associated with syenite porphyry.

The copper-bearing shear zone on claim No. MR 30884 strikes from west to south-west and dips south between 70 and 85 degrees.

ELECTROMAGNETIC-MAGNETOMETER SURVEY
RESULTS AND INTERPRETATION

The survey was conducted along north - west picket lines spaced at 200 foot intervals. A map at a scale of one inch to 200 feet showing the electromagnetic and magnetometer results accompanies this report. A dual frequency Crone E.M. unit and a Sharpe M.F.-1 fluxgate magnetometer were used for the survey.

The magnetic background ranges between 300 and 500 gammas.

In the extreme east portion of the survey area at about Line 2 West are a series of magnetic highs and lows. This zone corresponds to a north striking diabase dyke as depicted on Map No. 44A O.D.M. At about Line 18 West is present a similar zone of magnetic highs and lows striking about north which corresponds to a diabase dyke on Map No. 44A.

At Line 32 West is present the most intense magnetic anomaly with a peak of 3900 gammas. This anomaly strikes north-south directly towards the copper-bearing shear zone on the south shore of the river. Although it may represent a magnetite bearing volcanic rock, there is a possibility that it is caused by pyrrhotite and, therefore, the extension of the copper-bearing shear.

.....4

ELECTROMAGNETIC-MAGNETOMETER SURVEY
RESULTS AND INTERPRETATION (Cont'd)

This magnetic anomaly may or may not be conductive. The picket lines in this area almost parallel the anomaly, thereby providing insufficient coverage.

No zones of conductivity were indicated by the electromagnetic survey.

SURVEY METHOD AND INSTRUMENT DATA

The Crone E.M. Unit, used in the survey, is comprised of two similar coil units which both transmit and receive on a frequency of 1800 or 480 cycles per second. The coils were maintained at a distance of 200 feet along the survey lines using the in-line method.

In this type of survey the resultant reading is a measurement in degrees and an anomaly is usually a resultant reading greater than plus or minus three degrees. Initially the survey is conducted using the high frequency unit which is more sensitive. Any anomalous conditions are checked by the low frequency equipment, thereby often eliminating those anomalies which may be caused by conductive overburden. The ability to transmit and receive on both coils eliminates that error resulting from improper coil orientation over irregular terrain.

A Sharpe M.F.-1 Fluxgate Magnetometer was used in the magnetic survey. This instrument measures the vertical component of the earth's magnetic field in gammas. Base stations for determining the magnetic

.....5

SURVEY METHOD AND INSTRUMENT DATA (Cont'd)

diurnal variations were established along the main base line at 400 foot intervals. Magnetic readings were taken at 50 foot intervals along the cross lines.

CONCLUSIONS AND RECOMMENDATIONS

The diabase dykes indicated by the magnetometer survey are poorly defined because of the picket line direction and the limited coverage of the survey.

The intense magnetic anomaly striking almost north-south at Line 32 West may be caused by pyrrhotite in the extension of the copper-bearing shear zone on the south shore of the river. This possibility should be further investigated. A limited amount of electromagnetic survey work along east-west picket lines over the anomaly will determine whether or not it is conductive. In addition, an investigation of the north shore of the river in the area of the anomaly is recommended. Rock exposures may be present. Should the magnetic anomaly be conductive or should copper mineralization be exposed, diamond drilling will be merited.

Respectfully submitted,
ADVANCE GEOLOGY & GEOPHYSICS LIMITED

R. J. Bradshaw, B.A., F.G.A.C.,
Geologist.

Timmins, Ontario,
February 2, 1966.

900

ONTARIO

THE MINING ACT REPORT OF WORK

type of work to be recorded.

To the Recorder of ..... Montreal River ..... Mining Division

I, ... George Sunisloe ..... 1-5034 .....
name of Recorded Holder — Miner's Licence

..... Matachewan, Ont. .....
Post Office Address

do hereby report the performance of ..... 61.4 ..... days of ... geophysical ..... type of work

not before reported to be applied on the following contiguous claims

Claim No.	Days	Claim No.	Days	Claim No.	Days
MR. 40565	20.5				
MR. 40564	20.5				
MR. 37915	20.5				

All the work was performed on Mining Claim (s) ..... The above mining claims .....
(In the case of geological and/or geophysical survey (s) where more than 18 claims are involved attach a schedule)

READ CAREFULLY: THE FOLLOWING INFORMATION IS REQUIRED BY THE MINING RECORDER.

For Manual Work, Stripping or Opening up of Mines, Sinking Shafts or Other Actual Mining Operations – Names and addresses of the men who performed the work and the dates and hours of their employment.
For Diamond and other Core Drilling - Footage, No. and angle of holes and diameter of core. Name and address of owner or operator of drill. Dates when drilling was done. Signed core log and sketch in duplicate.
For Compressed Air or Other Power Driven or Mechanical Equipment
Type of drill or equipment. Names and addresses of men engaged in operating equipment and the dates and hours of their employment.
For Power Stripping - Type of equipment. Name and address of owner or operator. Amount expended. Dates on which work was done. Proof of actual cost must be submitted within 30 days of recording.
With each of the above types of work sketches are required to show the location and extent of the work in relation to the nearest claim post. In the case of diamond or other core drilling the sketch must be submitted in duplicate.
For Geological and Geophysical Survey - The names and addresses of men employed as well as dates. Type of instrument used in the case of geophysical survey. Reports and maps in duplicate must be filed with the Minister within 60 days of recording.
For Land Survey - the name and address of Ontario Land surveyor.

The Required Information is as Follows: (Attach a list if this space is insufficient)

See attached Assessment Work Breakdown Sheet

Date ..... Feb. 4, 1966 .....

..... R.J. Bradshaw .....
Signature of Recorded Holder or Agent

The Mining Act
Certificate Verifying Report of Work

I, ... R.J. Bradshaw .....

..... 152 Third Ave., Timmins, Ont. .....
(Post Office Address)

hereby certify:

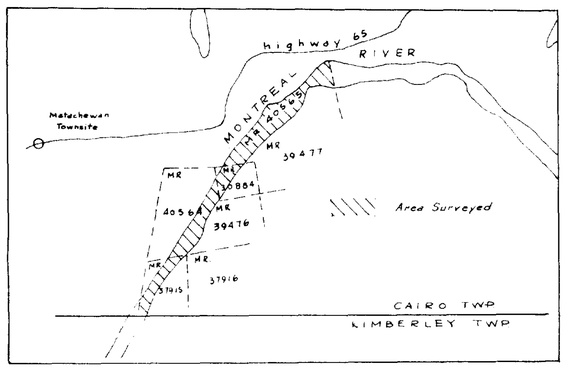
1. That I have a personal and intimate knowledge of the facts set forth in the report of work annexed hereto, having performed the work or witnessed same during and/or after its completion.

2. That the annexed report is true.

Dated ..... Feb. 4 ..... 19 66 .....

..... R.J. Bradshaw .....
Signature
R.J. Bradshaw

THE PENALTY FOR MAKING A FALSE STATEMENT IN THIS REPORT AND/OR CERTIFICATE IS $500. OR SIX MONTHS IMPRISONMENT OR BOTH



KEY MAP
1" = 2000'

MAGNETOMETER SURVEY

SYMBOLS

- Measurement station along picket line
- Relative value of the vertical component of the earth's magnetic field in gammas
- Magnetic contour
- Magnetic depression
- Claim post

INSTRUMENT
Sharpe MF-1 fluxgate magnetometer

ELECTROMAGNETIC SURVEY

SYMBOLS

- Measurement station along picket line
- Electromagnetic reading in degrees
- High frequency
- Low frequency
- Claim post

INSTRUMENT
Crone EM unit: 200 foot coil separation
Frequency: 1800 and 480 cps.

NORTH EXPO MINES LIMITED

Cairo Township, Montreal River Mining Division, Ontario

by

ADVANCE GEOLOGY & GEOPHYSICS LIMITED

February, 1966 BY: R.J.B.

SCALE
0 200 400 600 800
FEET

Feb. 3, 1966