CONCLUSIONS AND RECOMMENDATIONS:

The self potential method has located two strong anomalies on claim 44205 in Connaught Township, Shiningtree Area, Montreal River Mining Division, of Ontario. This may be caused by veins or dissemination of sulphides, or graphitic material. Magnetometer and horizontal coil E.M. have failed to further delineate these responses.

It is recommended that the cause of the S.P. anomaly be investigated by surface prospecting and/or pack sack diamond drilling.

INTRODUCTION:

A combined electromagnetic, self potential and magnetometer survey was carried out on claim M.R. 44205 in Connaught Township, Shiningtree Area of Ontario.

The purpose of the work was to complement a program of prospecting carried out by the company in the early summer, 1967.

The surveys were accomplished from a camp on the west-end of Okawakenda Lake which was reached by water routes from Highway 560 at Ronda Ranger Station, 3 miles east of the village of Shiningtree.
The instruments used in the survey consisted of a Sharpe F-1 vertical component, fluxgate magnetometer, and a Ronka horizontal coil, electromagnetic machine and a self potential unit.

A total of 1.3 miles of line were cut and chained prior to the running of the surveys. These lines were cut on a north-south bearing, 200 feet apart with picket stations established at 100 foot intervals. Where self potential readings are anomalous, readings were taken at 50 foot intervals.

**REGIONAL GEOLOGY:**

The regional geology of the area is described in the Ontario Department of Mines' Report, Vol. XLIII, Part III, 1934, Geology of the Makwa-Churchill Area, by H.C. Laird. The claim area contains Precambrian rocks consisting of volcanics (mainly andesites and trachyte flows), Temiskaming sediments, intrusives of quartz feldspar porphyry and diabase dykes.

Prospecting has been reported in the area spasmodically since 1916. Occurrences of copper mineralization have been noted.
DISCUSSION OF RESULTS:

a) Self Potential - Two self-potential anomalies were located on the property. Both occurred on line 6E. The strongest anomaly reached a peak of 677 millivolts at 225° south of the north baseline on line 6E. The second anomaly occurs on line 6E at 575° south of the north baseline where it reaches a maximum reading of 225 millivolts. This second anomaly may have an extension to the east on line 6E at 500° south where the maximum reading is 100 millivolts.

Both of these anomalies are comparatively small though quite strong. The cause might be either a fairly small vein, or system of veins, of sulphides or a similar zone of graphitic material.

The two anomalies are on either side of a small hill and trenching or pack sack diamond drilling might determine the cause of the anomaly.

b) Magnetometer - Magnetic readings over the area are low. The fact they appear as negative numbers is of no significance, since all these magnetometer data have an arbitrary zero level. There is no magnetic response over the previously described self-potential anomalies.
c) **Electromagnetic:** The E.M. shows no response over the self potential anomalies. This indicates there are no large bodies of massive sulphide in the vicinity, however, there might either be small veins or fairly disseminated material.

Respectfully submitted,

[Signature]

J.L. Tindale, B.Sc., Geologist.
DESCRIPTION OF EQUIPMENT AND METHOD OF SURVEY:

1) Magnetometer - Model MF-1, Fluxgate, Serial No. 505148, manufactured by Sharpe Instruments of Canada Ltd.
   - Total No. of stations - 151
   - Stations were established at 100 foot intervals along cut and chained picket lines. Readings were tied into one base station for corrections for diurnal variations.

2) Electromagnetic - Horizontal Coil Ronka instrument, serial No. 59, incorporated a Mark IV Transmitter and a Mark I Receiver.
   - The instrument operates on a frequency of 875 Hz. The measuring unit is calibrated to read the variations of the electromagnetic field in percentage of the normal field. Transmitter and receiver were connected with a 200 foot cable and in phase-out of phase readings were taken every 100 feet.

3) Self Potential - The self potential survey was conducted with an instrument developed by George W. Sander Ltd., Ottawa 14, Ontario, which is capable of measuring DC potentials with an accuracy of better than +1 millivolt. The amplifier has a high input impedance of 1 megaohm. The DC potential is measured by a null method.
   - The survey was conducted by using a stationary electrode which was, in most cases, located either on the baseline or on the tie lines and by surveying lines up to 1,200 ft. long using disposable copper wire.
The self-potential method is a reliable and simple means of detecting DC potentials in the ground which are at times due to the decay of sulphide mineralization, above the water table. In order to contour data obtained with this method or even to represent them properly in curves, it is necessary to measure the potential between the lines and, as a check, to treat each two lines as one closed loop. Errors in loop closure amounting up to 50 millivolts are not uncommon. These errors are due to two natural phenomena which can not be entirely eliminated from self-potential surveys.

Small variations in the measured DC potential are due to electrical potentials created in the soil. These potentials are probably due to electrochemical processes set up in the soil and they might amount to as much as 50 millivolts in extreme cases. In general, the differences are below 10 millivolts. In order to transfer measurements from one reference electrode to the other, the difference between the old location and the new location has to be measured. Small errors which affect the closure of loops might later be introduced in this transfer. To minimize the transfer errors, it is desirable to measure fairly long lines using just one reference electrode. In using such long lines, changes are introduced by telluric currents which set up potentials of about 20 or 30 millivolts over a distance of 3000 ft. These potentials vary at a period of several minutes or hours and they can not be separated easily from the variations of the DC potential.

Both errors might affect the appearance of a map but they will hardly mask significant results. Economical mineralization will, in general, set up potentials of several hundred millivolts and these potentials can be judged by the sharp gradients which occur close to the boundary of the mineralization of interest.
LOCATION OF CLAIM

MURKY FAULT METAL MINES LTD.
CONNAUGHT TWP., ONTARIO
SCALE: 1" = 2 MILES
MAGNETOMETER SURVEY

MURKY FAULT METAL MINES LTD.
CONNAUGHT TWP., ONTARIO

SCALE: 1" = 200'

OPERATOR: R. GARBU. DATE: JULY 29, 1967

LEGEND

READING IN GAMMAS

CONTOUR INTERVAL 1000 GAMMAS

SWAMP

CLAIM LINE
S. P. SURVEY

MURKY FAULT METAL MINES LTD.

CONNAUGHT TWP., ONTARIO

SCALE: 1" = 200'

OPERATOR: R. GARriott DATE: JULY 30, 1967

LEGEND

- READING IN MILLIVOLTS
- CONTOUR INTERVAL 50 MV.
- SWAMP
- CLAIM LINE

J. L. TROTTER & SONS
August 29, 1967
E. M. SURVEY

MURKY FAULT METAL MINES LTD.
CONNAUGHT TWP., ONTARIO

SCALE: 1" = 200'

OPERATOR: R. GARBUT. DATE: JULY 28, 1967