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SUMMARY

The following report describes a group of sixteen unpatented mining claims located in Frechette Township, Sudbury Mining Division, Ontario. The presence of copper mineralization on this claim group has been known for several years and a limited amount of diamond drilling was carried out in 1954.

It is this writer's opinion that further exploration work is warranted on this claim group. Surface trenching and stripping carried out since 1954 has exposed much more mineralization than was previously in evidence and this work also permits a more detailed examination of the geological conditions.

It now appears that the property should be approached as a possible large low grade copper prospect and it is recommended that an exploration program be carried out to evaluate the economic significance of the finely disseminated chalcopyrite mineralization present in certain of the flat-lying sedimentary beds. In addition to the surface exposures, there is much evidence in the records available from the 1954 drilling program indicating this type of mineralization.

PROPERTY LOCATION AND ACCESS

The property discussed in this report includes a group of sixteen contiguous unpatented mining claims comprising approximately 640 acres and located in the west central part of Frechette Township, District of Sudbury, Ontario. The claims included in the group are further described as follows:

S-132494, S-132495, S-132496, S-132497, S-132498, S-132499,
S-132500, S-132501, S-132502, S-132519, S-132520, S-132521,
S-132522, S-132523, S-132524 and S-132525

The claims are located one mile west of the main line of the Canadian National Railway at a point 37 miles north of Capreol. The property can best be reached by train as far as Thor Lake Station at mile 37 and then via a tote road suitable for use by a jeep or small truck. This road traverses the property in a southwest direction and continues to Dua Lake one-half mile to the south of the claims group. Dua Lake provides ideal landing facilities for float equipped aircraft.

Mention should be made here of the fact that the entire block of sixteen claims is not correctly plotted on the Frechette Township claims map. In reality, the block is located two claims further north and three claims further east than shown on the map.

TOPOGRAPHY

The topography of the area is characterized by a series of low outcrop hills and gravel ridges separated by low marshy terrain. The entire area is well wooded much of it being small second growth timber. There are numerous small lakes and ponds in the general area and three are located within the limits of the claims group. A small stream flows in a northeasterly direction through the southeast part of the property.

GENERAL GEOLOGY

There has been no detailed geological map published covering the immediate area of the claims group, however

Frechette Township is included on the Westree Sheet, Preliminary Map number P-300 published by the Ontario Department of Mines on the scale of one inch to two miles. This sheet shows most of Frechette Township to be underlain by Huronian type sediments including quartzite, arkose, argillite and conglomerate. These sediments form a series of flat lying beds except where they have been subjected to localized folding. On the claims group discussed in this report, the sedimentary series dips at about 20° to the east. This entire series is underlain by Algoman type granite which outcrops in the southwest part of Frechette Township with the intrusive-sedimentary contact striking in a northwest direction. The Algoman granites and the Huronian sediments have been intruded by Nipissing diabase which forms large sills in the sedimentary rocks and narrow dikes in the granites.

Two large regional faults extend in a northwest direction through Frechette Township. The main fault passes through Thor Lake and the second through Dua Lake. Several smaller subsidiary faults mostly striking in a north-south direction are also shown on the Westree Sheet.

Copper mineralization is associated with a fault structure on the group of claims discussed in this report. This fault strikes about north 20° east and dips steeply to the east. Where exposed in the bed of a creek on claims S-132495 and S-132501, it is well silicified across one to four feet and in places is heavily mineralized with chaloopyrite some pyrite and minor pyrrhotite. Fine disseminations and small masses of these

sulphides were also noted by the writer in some of the quartzite, arkose, and conglomerate beds forming a part of the Huronian sedimentary series on the east side of the fault structure. Some radioactive mineralization has also been unofficially reported associated with certain sedimentary beds at various locations in Frechette Township.

HISTORY

The presence of the copper mineralization on the claims group, has been known for several years but only limited exploration and development work has been carried out on the property. Trenching has been done at various locations along a 2,000 foot strike length of the silicified and mineralized fault structure extending through claims S-132495 and S-132501.

Armour Uranium and Copper Mines Limited acquired a group of 24 mining claims in Frechette Township in 1954 including the ground now covered by the claims discussed in this report. In May of 1954, that company put down three short x-ray holes in the vicinity of the main showing in the bed of the creek on what was then claim S-67689. This is now claim S-132501. These three holes were 27.0, 40.0 and 19.0 feet deep and were drilled at dips of minus 50, 80 and 45° respectively. Nothing concerning the results of this drilling was available to the writer.

Seven diamond drill holes recovering AX core were put down by Armour Uranium and Copper Mines Limited on the same claim during the period October 7th to December 15th, 1954. This drilling comprised a total of 3,098 feet and most of the records are on file at the office of the Resident Geologist for the

Ontario Department of Mines in Sudbury. The logs of the seven holes show the presence of copper mineralization with the most complete assay records being available for hole No. 1. This hole returned low grade copper values for a core length of 230 feet but with individual assays as high as 1.81% copper for a core length of four feet. The charter of Armour Uranium and Copper Mines Limited was cancelled in 1958.

During 1954, Genella Explorations Limited held a block of thirty-six claims located in the southwest part of Frechette Township. Exploration work was recommended according to a report filed with the Ontario Department of Mines but there is no record of any exploration work on file at the office of the Provincial Geologist in Sudbury.

The R. J. Jowsey Mining Company Limited carried out 1,166 feet of diamond drilling in a series of six holes on a group of nine claims located on the west side of Edna Lake in the southeast corner of Frechette Township. These holes were drilled during the period July 19th to August 7th, 1962, but only sparse pyrite and chalcopyrite is reported on the drill logs.

ECONOMIC GEOLOGY

High grade copper mineralization is exposed in the bed of a small creek and associated with a narrow vertical north-south fault structure on claim S-132501. A series of trenches put down at several hundred foot intervals along this fault and in the sedimentary formations adjacent to and east of the fault have exposed chalcopyrite mineralization along a strike length

of 2,000 feet. The mineralization in the fault is quite massive and varies from a few inches up to four feet. A channel sample on the main showing returned 10.30% copper across 3.0 feet.

The presence of sulphide mineralization including pyrite, pyrrhotite and chalcopyrite finely disseminated in some of the sedimentary beds has, in the writer's opinion, much more economic significance than the highgrade values associated with the silicification along the fault.

The sedimentary beds appear to be flat dipping to the east but can only be partially examined from the trenches and low fault escarpment along the creek. The writer recently took five chip samples at five different locations along a 2,000 foot strike length starting at a point near the main showing at line 0+00. These samples are described as follows:

<u>Sample No. 1</u>	Chip sample across five feet of finely mineralized quartzite thirty feet east of fault near line 0+00	0.45% Cu
<u>Sample No. 2</u>	Chip sample across five feet of mineralized conglomerate exposed in large pit near fault and 95 feet north of line 0+00	1.70% Cu
<u>Sample No. 3</u>	Chip sample from large pit exposing mineralized conglomerate immediately east of fault and 415 feet north of line 0+00	4.94% Cu
<u>Sample No. 4</u>	Chip sample across 3 feet of silicified and mineralized shear striking N15°E and dipping 65° east and exposed in a pit 50 feet east of creek and 1,040 feet north of line 0+00	1.61% Cu
<u>Sample No. 5</u>	Chip sample across 2 feet of silicified and mineralized shear or fracture filling striking N15°E and dipping 60° east and exposed by stripping at a point near the edge of creek and 2,000 feet north of line 0+00	3.40% Cu

Samples Nos. 1 and 2 are, in the writer's opinion, the most important as they were taken from two entirely different beds within the sedimentary series and neither represents the full thickness of the beds which are only partially exposed by trenching and stripping.

CONCLUSIONS AND RECOMMENDATIONS


The claims group discussed in this report definitely warrant further exploration work. The trenching and stripping carried out since 1954 along the low fault escarpment on the east side of the creek on claims S-132495 and S-132501 have exposed much more mineralization and provide a better opportunity to examine the geological conditions. It now appears that most of the holes completed in 1954 were drilled with the dip of the beds and it is very probable that the significance of the disseminated low grade copper mineralization in the sediments was not recognized at that time. Although the assay records available to the writer from the 1954 drilling are not complete there are sufficient indications of low grade copper values over wide widths to suggest the possibility of a large tonnage low grade copper prospect.

It is recommended that further diamond drilling be carried out starting with a series of short closely spaced holes on twenty-five foot centres and drilled vertical or steeply west. The first hole should be drilled immediately east of the trench from which sample number 2 was taken by the writer and then a series of holes drilled north, south and east from this point with special attention being given to the correlation from hole to hole of the different sedimentary beds.

A complete detailed geological surface plan should also be made covering the entire sixteen claims. East-west transverse lines should be cut at three hundred foot intervals to provide control for this geological mapping as well as future geophysical and radioactive survey work. It is recommended that 2,000 feet of diamond drilling be carried out as the initial phase of an exploration program on this claim group. It is estimated that this drilling will cost ten thousand dollars.

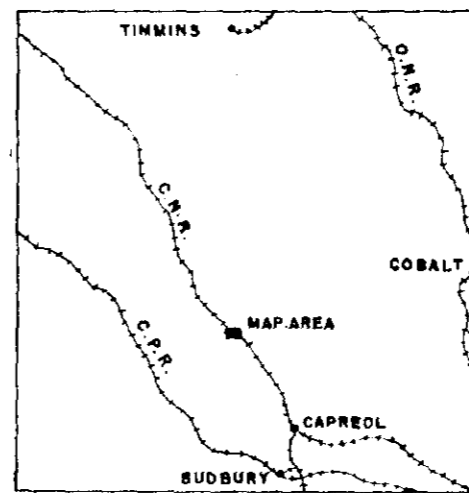
Respectfully submitted,

Toronto, Ontario,
June 7th, 1967

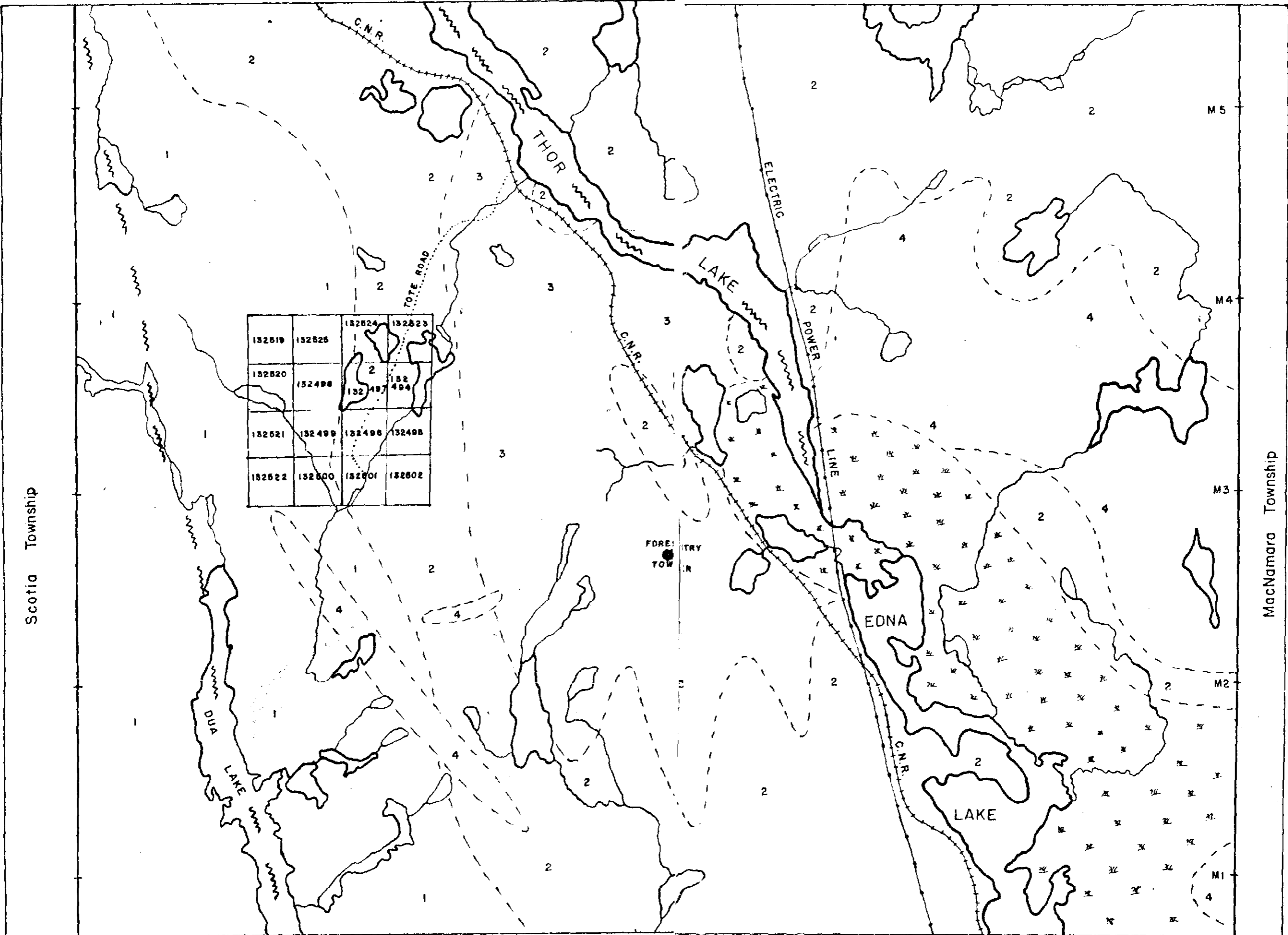

James D. McCannell,
Geologist

LEGEND

- 4 NIPISSING DIABASE
- 3 LORRAIN QUARTZITE, ARKOSE AND CONGLOMERATE
- 2 GOWGANDA CONGLOMERATE AND ARGILLITE
- 1 ALGOMAN GRANITE
- x x MARSH AND MUSKEG
- - - - - GEOLOGICAL CONTACT



KEY MAP SCALE 1 INCH = 60 MILES



INFORMATION FROM ONTARIO DEPARTMENT OF MINES MAP NO. P. 300

PROPERTY OF
TECO MINES AND OILS LIMITED
 FRECHETTE TOWNSHIP
 SUDBURY MINING DIVISION
 ONTARIO

SCALE 1 INCH = 40 CHAINS

63-2947 *A. J. D. [unclear]*
June 7 1967

