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REPORT ON
GROUND MAGNETIC & ELECTROMAGNETIC SURVEYS

MID-NORTH ENGINEERING SERVICES LIMITED

24-CLAIM GROUP
ARGYLE TOWNSHIP
MATACHEWAN AREA
DISTRICT OF TIMISKAMING
ONTARIO

May 16, 1973

CANA EXPLORATION CONSULTANTS LIMITED



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Plan: Magnetic & Electromagnetic Survey Data
 Mid-North Engineering Services Limited
 24-Claim Group
 Argyle Township
 District of Timiskaming
 Larder Lake Mining Division
 Ontario

Scale: 1" = 200'

May, 1973

Mid-North Engineering Services Ltd.,
Suite 416,
25 Adelaide Street West,
Toronto, Ontario

Gentlemen:

This report describes a program of ground magnetic and electromagnetic surveys conducted by you on a 24-claim group located in Argyle Township, Matachewan Area, District of Timiskaming, Ontario. The field work was carried out in April, 1973. Results and interpretation are depicted on the plan accompanying this report, plotted to the scale: 1" = 200'.

The program, with a 400 foot line grid, has systematically covered the claim group which is interesting because of the occurrence of a high grade copper-nickel showing and other mineral indications. The survey encountered several interesting indications. Geological, geophysical and geochemical check surveys and some detailed work on part of the property are required to closely examine its possibilities prior to probable test diamond drilling.

PROPERTY, LOCATION AND ACCESS -

The 24 claims are located at the northeast boundary area of Argyle Township, Larder Lake Mining Division, Ontario. They cover a piece of ground three claims wide, north-south, and eight claims long, east-west. They are registered under the name of J. A. Witherspoon and are identified as follows:

L330830 to 330827, inclusive (8 claims)
 L340598 to 340697, inclusive (10 claims)
 L341289 to 341291, inclusive (6 claims)
 Total 24 claims

The location is about 15 miles northwest of the Town of Matachewan.

Access can be had by motor road from Matachewan to the central part of Argyle Township, then by a tractor road for about three miles to a cabin, known as Kell's Camp, located at the east central part of the property. Access can also be had by boat from Matachewan up the Montreal River to the head of Matachewan Lake where a bush trail leads westward for about four miles to the Kell's Camp.

GEOLOGY, HISTORY AND MINERAL OCCURRENCES -

Geology of the area is on Map No. 41a, O. D. M., accompanying a report by H. C. Rickaby, 1932. This map shows that the property is in a swampy area underlain by Keewatin basic volcanics. A boss of Algoman acidic intrusive is located to the immediate east at the northeast corner of the township.

According to a report by H. L. Banting, dated October 25, 1951, O. D. M., Assessment Work File 63.268, a magnetometer survey was carried out for B. W. Lang to trace and delineate an altered chloritic basic dike, which was known from two surface localities to

carry disseminated sulphides and at least one small lens of massive sulphides. The small lens of massive sulphides had given high grade assays of copper, nickel, platinum and palladium, while the disseminated sulphide mineralization in the basic dike had given in a sample taken across 40 feet low values in copper, nickel, platinum and palladium. Field tests of samples showed that the magnetic susceptibility of the massive sulphides and basic dike was sufficiently higher than the host rock.

The approximate location of the high grade pit shown on Banting's map is given on the plan accompanying this report. A sample of massive sulphide reported to be from this property, and assayed by X-Ray Assay Laboratories for you, gave the following results: 5.66% Ni, 12.6% Cu, 0.04 oz/ton Au, and trace of silver.

Banting's map also showed the occurrence of several pits and trenches which carry zinc, gold and silver values in tight fractures and shears. A small fracture zone, located at the southwest part of what is now Claim L-339821, is said to carry high values in zinc, gold and silver. The zinc, gold and silver mineralization was found either along the margins or within the limits of magnetic anomalies located within granite or in sheared volcanics close to the granite contact.

Banting recommended a diamond drill program to consist of seven drill holes totalling 5,000 feet to appraise a series of magnetic

anomalies which were interpreted to represent the limits of the basic chloritic dike bearing the copper, nickel and platinum mineralization. The recommended drill holes were stated to have been plotted on a compilation map of magnetic, electromagnetic and self-potential survey results.

The said compilation map is not available to the present writer, but geophysical operator, Mr. Joe Kakish, did find an old drill hole at the south end of the series of magnetic anomalies recommended to be tested. Drill cores found near Post 1, Claim No. L-341292, are apparently very old and from an X-ray drill would appear to represent more than several hundred feet of drilling. The scope and results of the said electromagnetic and self-potential surveys are not known.

TOPOGRAPHY AND OLD WORKINGS -

The topography is extremely flat with extensive jack pine and cedar swamps. Relatively higher and/or dry grounds as observed by the geophysical operator are outlined on the plan accompanying this report.

In addition, the location of old trenches, pits and small out-crop areas along the picket lines are also noted. On the relatively higher ground, in Claims Nos. L-339820 and L-339821, in the vicinity of the base metal occurrences, there are numerous old

surface workings - too many to be individually noted on the geophysical map accompanying this report.

MAGNETOMETER SURVEY RESULTS AND INTERPRETATION -

The geophysical surveys described in this report were carried out along picket lines spaced at 400 foot centers and turned off from two base lines established at a N35°E direction. This direction is more or less parallel to aeromagnetic zones located on the property as shown on published aeromagnetic map of the area. The 1951 magnetic survey was carried out along north-south picket lines.

The current magnetic survey outlined two main zones of weak to moderate magnetic anomalies on the central and eastern parts of the property. The relatively stronger central zone corresponds closely with the inferred mineral-bearing basic dike described by Banting. The weaker but somewhat wider eastern zone, and other small anomalies located inbetween the two, was described by Banting as due to granite and related quartz porphyry.

One should note here that the high grade pit as shown on the 1951 map and the plan accompanying this report is not on any magnetic anomaly, but rather at a magnetic depressant associated or adjoining a magnetic anomaly.

The more interesting magnetic anomalies encountered by the current survey are identified on the plan accompanying this report. These are anomalies "A" to "G" inclusive. They have readings of over 1000 gammas against background readings in the order of 700 to 800 gammas.

All, with the exception of "D" and "F", were encountered by the 1951 magnetic survey. "D" is a small anomaly and was covered but not detected by two of the 1951 north-south traverses. It should be checked for possible artificial objects which may cause the high readings. "F" is a fair sized anomaly mainly located between two old traverses. A small 1951 anomaly known as (E) is to be located somewhere between Lines 20S and 24S, 1200 feet west. The other anomalies though not having the same shape as that encountered by the old survey - due to differences in direction of traverses and some more detailed old lines - are apparently in two zones striking northeasterly.

Anomalies "A", "B" and "C" are considered as one zone cut by cross faults and have high readings of up to 2490 gammas with narrow widths from 50 feet to 200 feet. This zone with an indicated length of about 4000 feet was described by Banting as indicating the mineral-bearing basic dike and was apparently tested by some diamond drilling, though some claimed that the massive sulphide lens, which is located near "A", has never been drilled.

The other anomalies have high readings in the order of 1100 to 1200 gammas - somewhat weaker than the inferred basic dike. Anomalies "E" and "G" are inferred by Banting as due to granite dike and related quartz porphyry cutting volcanics. "G" is comprised of three elongated zones and, according to aeromagnetic data, it is part of a two-mile long aeromagnetic anomaly (Map 290G, O. D. M. & G. S. C.) to indicate a relatively prominent structure. The strike is more or less parallel to a zone of sheared volcanic with zinc and gold mineralization at an old trench shown on Banting's map at a location near the south end of new line 0 + 00. The 1951 map showed no trenching across anomaly "G". The geophysical operator also observed no surface working at this anomaly.

The writer has taken 950 gammas as the approximate indicated boundary of the mineralized basic dike noted by Banting. The same reading was used to mark the boundaries of relatively more basic parts of the granitic intrusive noted by Banting at the other anomalies. These inferred geological boundaries, together with other inferred faults, serve to depict a geological picture which may be useful in further evaluation of the property.

The inferred faults, as depicted on the plan accompanying this report, are based on the magnetic and the electromagnetic data obtained by the present survey to assist further examination.

There are several other possible faults or weak shearings not depicted on this plan.

ELECTROMAGNETIC SURVEY RESULTS AND
INTERPRETATION -

The electromagnetic survey encountered several east-westerly poor conducting zones. None has the characteristics for a massive conductive body. They are inferred as indicating conductive faults running in the direction most effectively detected by the survey, using Station NAA, which was the only transmitter station available during the survey.

The survey also detected several similar northeasterly conductor zones. The following three are, however, somewhat stronger:

- (a) Conductor located about 200 to 250 feet to the northwest of magnetic anomaly "B". This conductor has a maximum in-phase change from 33% to minus 12%, with corresponding weaker out-of-phase changes. It is located within a magnetic low area, part of which appears to be associated with anomaly "B". The conductor has an indicated length of 600 feet and from a depth of about 100 feet. It could be a surface conductor.
- (b) Conductor located between two magnetic zones of anomaly "G" in Claim L-339826. It has a maximum in-phase

change from 19% to minus 17%, and very little out-of-phase variation. It has an indicated length of about 700 feet and is inferred as indicating a shear or fracture zone within anomaly "G" or a surface conductor.

- (c) Conductor located in the swamp area of Claim L-340590 with an indicated length of over 600 feet. The conductor has the characteristics of a weak conductor in weakly conductive ground.

The survey also encountered a north-south poor conducting zone in Claims L-340602 and L-340604. This zone has an indicated length of over 1200 feet and is apparently affected to a certain degree by topography.

In addition, the survey encountered several poor conducting points, two of which, located in Claim L-339823, are apparently from surface. A possible poor conducting point located at L-20S, 1950 feet west, is the only interesting electromagnetic indication encountered near the approximate location of the high grade pit.

CONCLUSIONS AND RECOMMENDATIONS -

The magnetometer survey has outlined several weak anomalies on the property. The relatively stronger anomalies "A", "B" and "C" are inferred as indicating the mineral-bearing basic dike described by H. L. Banting. The indicated length of this zone is about

4000 feet, but apparently has been cut by several cross faults as depicted on the plan accompanying this report. The known lens of high grade mineralization appears to be associated with but not necessarily on the nearby anomaly "A". It may well be located within associated lows due to di-pole effects. There was apparently some drilling carried out in the old days to test this inferred mineral-bearing dike, probably concentrated on the magnetic highs.

Using the information given by Banting, the other anomalies (excluding "D" and "F" which were not detected in 1951) "E" and "G" have the possibilities of being associated with structures favourable for the occurrence of zinc and gold mineralization.

The electromagnetic survey encountered many indications of poorly conductive east-west fault structures. Choice indications are apparently running at a north-easterly direction, one of which is located near anomaly "B" and the other at anomaly "G". There is a possible conducting point located to the south of the high grade pit.

The writer recommends to carry out the following program to further explore the possibility of the property:

- (1) To examine the geology of the property by means of
 - (a) examining the drill cores left on the property;
 - (b) locating the mineral showings on the property, including the high grade zinc and gold near Post 3, Claim L-339821;
 - (c) examining all the outcrops,

including those exposed by trenching and (d) examining the high ground area at anomaly "G" for possible outcrops.

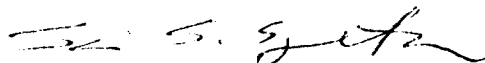
- (2) To establish inbetween detailed picket lines across anomaly "A" and the north half of "B" for a detailed magnetic survey and an electromagnetic check survey, using a vertical loop unit.

The detailed picket line crossing "A" should be established to pass over the high grade pit, and a Ronka EM-15 instrument is recommended to be used to trace the mineral lens in detail to its full extent.

- (3) To carry out a geochemical check survey to cover all the magnetic zones described in this report.

Respectfully submitted,

CANA EXPLORATION CONSULTANTS LIMITED



S. S. Szetu, Ph. D., P. Eng.
Consulting Geologist

SSS:rk

Toronto, Ontario
May 16, 1973

