GEOPHYSICAL ENGINEERING & SURVEYS LTD.,

NORTH BAY, ONTARIO

REPORT ON THE

GEOLOGICAL AND GEOPHYSICAL SURVEYS

OF THE

McVICAR LAKE GROUP

FOR

HOEY SYNDICATE

RESPECTFULLY SUBMITTED

C. Idziszek
Chet Idziszek

REPORT NO: 443 N.B.
N.T.S. 52 O/11

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SUMMARY

The exploration program failed to locate copper and nickel mineralization of economic interest. Only a few small pockets of chalcopyrite and pyrrhotite mineralization were found. The electromagnetic surveys failed to find conductors. The rocks in the claims area belong to a layered gabbro-anorthosite complex that strikes to the southeast and dips steeply to the south. The results of this program indicates that further work is not warranted.

RECOMMENDATIONS

1. No further exploration is recommended.

INTRODUCTION

A combined geological and geophysical (Magnetometer, VEM - Electromagnetic and a VLF Radem check of some area), exploration program of the McVicar Lake claims was carried out in September, 1971. These surveys were mapped at a scale of 1 inch = 200 feet. The purpose of this program was to locate and evaluate areas of copper and nickel mineralization including the trenching of favourable sections.

The work entailed the cutting of 12 miles of line for the surveys. Six trenches were blasted perpendicular to the strike of the rocks and subsequent representative samples were taken and assayed. The work was done by Geophysical Engineering & Surveys Ltd. under the supervision of H. D. McLeod.

Certain claims lie partly under water thus geophysical and geological coverage is not complete. Partial credits are requested on these claims.

THE PROPERTY

The McVicar Lake Group property of the Hoey Syndicate consists of 16 claims: 310346 to 310361.

The claims were staked in June 1971 by Frank Hoey, prospector from Willowdale, Ontario.

LOCATION & ACCESS

The property is contained within 91°23' to 91°25' west longitude and 51°33' to 51°35' north latitude, 50 miles west of Pickle Lake, in the Patricia Portion of the District of Kenora, Northwestern Ontario.

Access is by float plane from either Pickle Lake, Red Lake to the west or Sioux Lookout to the southwest.

ACCOMPANYING MAPS

1. Dwg. 4102 Magnetometer Survey
2. Dwg. 4103 VEM - VLF Electromagnetic Survey
3. Dwg. 4104 Geology

REFERENCES

Fenwick, K. G. (1970) Ontario Department of Mines Preliminary Map P 665.

Laird, H. C. Geology of Shonia Lake Area: District of Kenora (Patricia Portion); Ontario Department Mines, Vol. 39 Pt. 3 P 1-21 Map 39d.

GEOPHYSICAL SURVEYS

Survey Methods

North-south lines were cut at 400 foot intervals across all the claims, using an east-west baseline at the south boundary of the claims. East-west tie lines were cut at 23+00N and 40+00N as control. Lines were cut every 200' in the region of the showings, in the north-east corner of the property along with an east-west tie line at 41+00N. A total of 12 miles of lines were established.

A. V. E. M. electromagnetic survey was done using a Sharpe SE 200 unit. Readings were taken at 100 foot intervals along all the lines with readings every 50 feet in the detail areas. The parallel line method was used in the survey, employing a 400 foot transmitter receiver spacing. In the detail areas the fixed transmitter method was used. The Crone V. L. F. Radem unit was used to check the area around trench 1 (line 16 and 20 east) and the detail area surveyed by the V. E. M. unit on line 4+00 east. Readings were taken every 50 feet over these areas.

A magnetometer survey was done with a Sharpe Fluxgate model MF-1 magnetometer. Readings were taken every 50 feet along the lines, except in the region of the showings (line 4 east north of 41+00 north and lines 6 east to 20 east), where 25 foot readings were taken.

Results of Surveys:

The magnetometer survey located a number of linear and ellipsoidal anomalies of various sizes. The region of the higher magnetic anomalies were found to coincide with magnetite rich gabbroic rocks in the field. The outlines of these anomalies delineates the stretched lensoid character of these rocks. Also the linear trend of the anomalies themselves parallels the strike of the rocks and the regional trend. Subsequently, the lower intensity anomalies delineate gabbroic rocks with less magnetite content. On the other hand, the anorthositic rocks were found to lie in regions of magnetic lows. The magnetic intensity ranged to 17,400 gammas above a background of approximately 500 gammas.

The initial V. E. M. survey, revealed a very flat background with three quite weak crossovers; line 0+00 at 15+80 north and on line 4+00 E at 17+20 and 22+80 north. They were thought to have been caused by orientation. When checked in detail the crossovers were eliminated. Also, the detail done on lines 16, 18 and 20 east in the region of trench 1, again provided negative results.

The radem check did not indicate any strong conductors as anticipated. The check on the trench 1 region on lines 18 and 20 east picked up reverse crossovers with negative filter data. This was attributed to the closeness of the unit to the lake. It did pick up an insignificant crossover on line 4+00 east at 18+60N.

GEOLOGY

General Geology

All the bedrock in the map area is archean in age. The metavolcanic rocks to the north and east of the claims appears to be the oldest. Mafic to intermediate lavas and pyroclastic rocks make up this metavolcanic sequence.

A sill-like or banded lopolith body of gabbro, anorthositic gabbro, anorthosite, gabbroic anorthosite and diorite occupies most of the map area. It exists as a banded and foliated gabbro-anorthosite complex, with both the banding and foliation striking to the south east and dipping steeply to the south.

A few insignificant pegmatitic feldspar, feldspar pyroxene and aplite dykes and stringers cut the above rocks.

Porphyritic basic dykes also occur in minor amounts but were not found to be discordant.

The following classification based on Buddington (1939), on the basis of mafic mineral content was used in the mapping.

	% mafic minerals
anorthosite	- 0-10%
gabbroic-anorthosite	-10-22%
anorthositic-gabbro	-22-35%
gabbro	- > 35% 35%

Metavolcanic Rocks:

Only one outcrop of metavolcanic rocks occurs within the map area, on the small island in claim 310354. It is composed of a fine grained, massive, mafic volcanic lava, that is mildly foliated in some sections. No mineralization was found.

Gabbroic Rocks:

The gabbroic, like the anorthositic rocks exist as definite bands and as elongated flattened lenses.

Most of the complex consists, to a considerable extent of gabbro that is uniform in character, medium grained and mildly foliated. It gives place locally to coarse grained, anorthositic, very mafic, quartz gabbro and, fine grained varieties. In color they appear greyish green to dark grey.

The medium grained gabbro grades from a mafic poor anorthositic gabbro through to a mafic rich variety. Foliation varies from very weak to strong in these rocks. Quartz is usually absent or occurs less than 1% as interstitial anhedral grains although, a few smal areas of quartz gabbro was found on the property.

The anorthositic-gabbro usually occurs as narrow bands less than 20 feet across and grading into the regular medium-grained gabbro.

In places the gabbroic rocks are in part or entirely composed of ferromagnesium minerals and associated with them are magnetite rich disseminations. These concentrations are common in the more

mafic variety while occurring usually as minor disseminations in the regular gabbro. Magnetite rich gabbro usually occurred as elongated lensoid masses paralleling the regional trend. These areas are quite well delineated on the accompanying magnetometer map. Disseminated anhedral pyrite, less than 1% is also usually present.

Coarse grained gabbro patches, less than 2 inches across, where found to be quite common in the medium grained gabbro. Usually associated with these patches was chalcopyrite, pyrrhotite and pyrite mineralization. They usually make up less than 5% of the rock but this increases from 20-30% in the region of some of the coarse grained bands (trench 1).

The coarse grained gabbro, unlike the others lacks foliation, appearing hypediomorphic-gramular. It usually occurs as segregation bands from less than 2 feet to twenty feet in width. An exception is a large ellipsoidal mass, approximately 100 feet across on line 0+00 at 30+00. Disseminated and in one case massive chalcopyrite and pyrrhotite mineralization seems to be associated only with the thinner bands, where it appears as a host, (trench 1, trench 5). Mineralization in the larger bands and the mass on line 0+00 is that of disseminated magnetite and pyrite.

Anorthosite, Gabbroic Anorthosite

The anorthosite and gabbroic anorthosite rocks were usually mapped as one unit since they both grade into each other. On the other hand these rocks pass rather abruptly into the gabbroic rocks.

Parallel masses or bands of these rocks occur throughout the map area. They are found as continuous bands conformable to adjacent gabbroic rocks, from a few inches across to greater than 400 feet. Most of the layers seem to eventually pinch out or splay into narrower bands. The strike of the bands and in most cases the dip conforms to the regional trend. Colour ranged from white to grey and in places it was mottled to pale green. Foliation of the gabbroic anorthosite is usually moderate to well established. In the anorthosite however, only a few outcrops exhibited a planer arrangement, but this was restricted only to the mafic minerals in the groundmass.

The grain size of the anorthosite is coarse with subhedral to anhedral plagioclase grains ranging up to one inch across. Granulation and fracturing of these grains is quite common. The gabbroic anorthosite rocks ranged from fine to coarse grained intexture. No pattern existed with this texture, except that with the narrower bands the grain size of the gabbroic anorthosite was finer.

Chalcopyrite and pyrrhotite mineralization was found only in minor amounts in these rocks. It occurred as disseminated

anhedral grains in the anorthosite near line 6 at 32+50N. On the anorthosite near line 6 at 32+50N. On the large island in claim 310347, minor chalcopyrite mineralization claim 310347, minor chalcopyrite mineralization was found as blebs plastered against small fractures in the rock. small fractures in the rock. The anorthositic rocks were found relatively free of magnetite mineralization

Quartz-Diorite, Diorite

The quartz diorite and diorite rocks occur as small basic to intermediately basic lensoid masses scattered throughout the property. They are most commonly medium grained and massive with quartz content being usually greater than 5% with some quartz rich differentiates occurring.

No association of these rocks to chalcopyrite and pyrrhotite mineralization was found.

Unconformable Dyke Rocks:

Three types of dykes were found cutting the complex in the map area. They vary from less than one inch to about 10 feet across. There appears to be no association with these rocks to chalcopyrite and pyrrhotite mineralization.

Pegmatitic feldspar and feldspar-pyroxene dykes less than 5 feet across were found cutting and replacing gabbroic rocks in the region of line 14 west and 39+00N. The pyroxene is coarsely crystalline with individual grains ranging to 6 inches in length.

Narrow aplite dykes and stringers are the most common in the complex. They vary from less than one inch to about one foot across.

Only one lamprophyre dyke was found in the map area.
Only one lamprophyre dyke was found in the map area.
It is approximately 10 feet wide, cutting gabbroic rocks near line
10 feet wide, cutting gabbroic rocks near line
4+00 west and 39+00N.

Basic Dykes:

Conformable basic dyke rocks, less than 10 feet in width were found in the region of line 4E at 40+00 north. They are coarsely porphyritic with subhedral feldspar crystals varying to 1/2 inch across, and have a medium grained groundmass. The rock itself is unmineralized and associated mineralization does not occur in the adjacent country rocks.

STRUCTURE

This gabbro-anorthosite complex has in general a north-west to south-east trend which is paralleled by the strike of the banding of the layers and the strike of the foliation of the gabbroic rocks and gabbroic anorthosite within it. This foliation can vary from very weak to strongin the gabbroic and gabbroic anorthosite rocks while it is very poor to non-existant within the anorthosites. Also, the steep south dip of the foliation of the gabbroic rocks generally parallels that of the dip of the layers. Complementing this pattern is the strike of the flattened ellipsoedal magnetite rich gabbroic masses, which are found paralleling the regional trend in the field and on the magnetometer map.

Small, narrow sections of mild shearing less than
narrow sections of mild shearing less than
10 feet across was found on two outcrops of gabbroic rocks; line
was found on two outcrops of gabroic rocks;
6 east at 41+50 north and 100 feet east and line 12 east at 19+50 north
north and 100 feet east and line 12 east at 19+50 north

and 100 feet east where the strike of shearing is 104°. No association

east where the strike of shearing is 104°. No association

to mineralization was found with this shearing.

was found with this shearing.

Also small areas of mildly fractured rocks are scattered throughout the property. In some cases these fractures are the locus of minor chalcopyrite and pyrrhotite mineralization (eg. trench 6).

At the north end of trench No. 6 (line 4 east at 39+00 north) there occurs a gabbro-calcite breccia that gave very poor assay results. .01% Cu, .01% Ni, gold per ton-nil and silver (ozs.)-nil.

TRENCHING, SAMPLING & ASSAY VALUES:

A total of 6 trenches were made in the north-east section of the map area. They were blasted perpendicular to the strike of the rocks to an average depth of approximately 2 feet. The trenches varied from 8 to 43 feet in length. The location, geology and assay values from the trenches is shown on the enclosed geological map.

Careful, representative chip samples taken at one foot intervals were taken off trenches 2 to 6. In trench no. 1 this interval was shortened to 6 inches, since this trench showed the most favourable mineralization. This type of sampling produced

This type

assay results of 0.36% Cu and 0.26% Ni for a 5 foot intersection of a coarse grained gabbro in trench 1 that is quite highly mineralized

12.

in parts with pyrite, chalcopyrite, pyrrhotite and magnetite. This
chalcopyrite, pyrrhotite and magnetite. This
rock occurs from footage 35 to 40 in the trench. These low assays
35 to 40 in the trench. These low assays
are representative even though a section approximately 1 1/2 feet in width within this gabbro has an estimated average visual chalcopyrite content from 5-7%, since the rest of this gabbro is poorly mineralized.

The representative grab samples from trenches 1A and 1B were taken immediately north and south of the above coarse grained mineralized gabbro and along it's strike. The analysis revealed low assay values of 0.12% cu, 0.12% ni and 0.04% cu, 0.02% ni. respectfully.

MINERALIZATION:

Numerous interesting mineral occurrences of chalcopyrite, pyrrhotite and to a minor extent bornite were found within the north-east part of the property also.

The mineralization bearing copper and nickel (in pyrrhotite) is not restricted to any one rock type or structure. The chalcopyrite and pyrrhotite usually occur together in varying amounts with the chalcopyrite being the major mineral. Bornite mineralization was found associated with chalcopyrite in minor amounts in trenches 3, 4 and 1.

The best mineralization on the property was found in trench 1. It appears to exist as a small lensoid pocket less than 20 by - 1 1/2 feet of higher grade mineralization, within a coarse grained gabbro; explanation of this trench follows and appears under the last heading. Disseminated mineralization seems to be
Disseminated mineralization seems to be

the most common in this area, occurring within some medium grained gabbro, quartz gabbro, coarse grained gabbro and anorthosite bands. In places, small pockets of higher grade mineralization occurs. Chalcopyrite and pyrrhotite mineralization was found within the following associations, none of which were found in economic proportions.

1. occuring as disseminated and small mildly mineralized pods and narrow bands within coarse and medium grained gabbroic rocks and anorthosites. Examples: trenches 2, 3, 4 anorthosite on line 6 east at 32+20 north.

2. occurring as massive sections and thin stringers within a coarse grained gabbro band in trench # 1. Some of this mineralization makes up the groundmass of the rock.

3. occurring as anhedral blebs associated with small coarse grained gabbroic patches within some medium grained gabbroic rocks. Example: trenches 1, 3 and 4.

4. occurring as blebs plastered against minor fracture planes and rarely as thin fracture filling. Examples: trench 6, within anorthosite on island in claim 310347.

5. occurring associated with calcite within minor fractures Example: trench 6.

6. occurring as anhedral blebs within quartz veinlets. Example: line 8 east 32+40 north.

14.

FUTURE EXPLORATION:

The geophysical and geological surveys were exercised
geophysical and geological surveys were exercised
in sufficient detail to discount the possibility of the prescence of an undiscovered chalcopyrite pyrrhotite conductor of any significant size; Geological investigation showed that the existing chalcopyrite-pyrrhotite mineralization is restricted to small pods and narrow bands, which is exemplified in the fact that they were even too small for the geophysics to pick it up. On the basis of this information no further exploration of the claims is warranted.

APPENDIX TO REPORT

FIELD PROCEDURE FOR A.V.L.F. ELECTROMAGNETIC SURVEY

The "RADEM" unit is essentially a specially designed radio receiver which receives very low frequency radio signals from transmitters located at various points throughout the world.

The receiving unit is used to measure the direction of the magnetic component of the transmitted field.

The normal VLF magnetic field is horizontal, however, the field is distorted by the presence of a conductive body. The presence of a conductive body can, therefore, be determined by measuring the dip angle of the resultant field at regular intervals.

The instrument is so designed that when in the position of minimum coupling, the arrow on instrument points towards the conductive body. The axis of the body will be located at the zero or "cross-over" point between sets of dip angles which point towards the zero point.

The magnitude of the dip angle and the direction in which the arrow points are recorded at each field station.

The direction of the magnetic component of the field from a VLF transmitting station is horizontal and perpendicular to the line between the operator and the transmitting station.

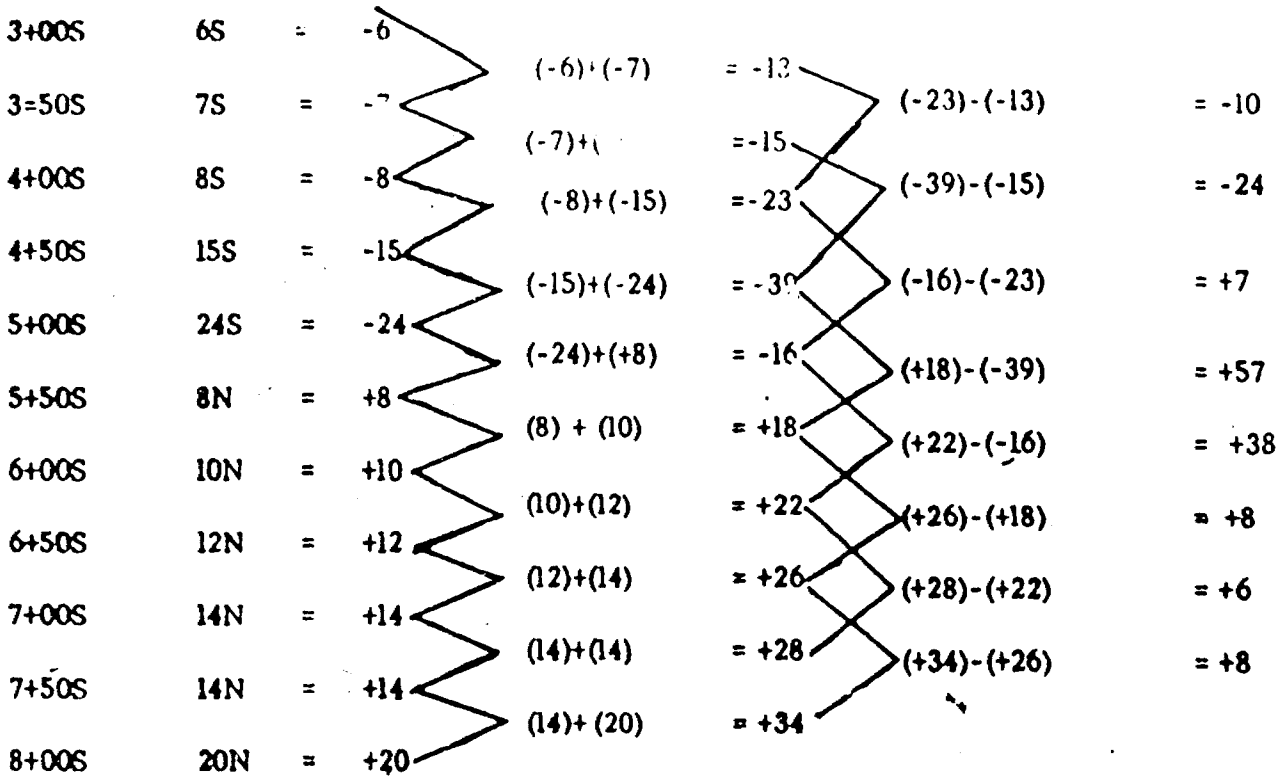
For best results, a station is selected so that the magnetic field is perpendicular to the suspected strike of possible conductive bodies.

The unit is turned on and the volume control knob adjusted so that the signal is clearly heard. The unit is then held in a horizontal position and rotated until an audio null is obtained. The unit is then aligned parallel to the field direction. The receiver is then rotated into the vertical position and rotated about a vertical axis until an audio null is heard. The dip angle is then noted as well as the direction in which the arrow points.

If, when reading a station to the south, a dip angle of 20 degrees is obtained and the arrow points to the east the conductor is located to the east.

The results are plotted both as profiles of the dip angles and as contours of the filtered data.

The following example of calculations illustrates that the contourable quantity is the sum of the values at two adjacent stations minus the sum at the next two adjacent stations.



A 50-foot station interval is recommended however, in actual practice, readings are taken at 100-foot intervals with 50-foot readings being taken where anomalies occur. Later, 50-foot artificial data is interpolated in non-anomalous areas prior to performing the calculations.

The positive values only are contoured at 10 value intervals.

APPENDIX TO REPORT

FIELD PROCEDURE FOR A MAGNETOMETER SURVEY

The magnetometer deflection depends on the total vertical intensity and is made up of

(a) A large part which does not vary with time or position on the property.

(b) A small part which varies with time, called the diurnal variation.

(c) A part which varies over the property, called the anomaly value.

It is necessary to eliminate (a) and (b) and to measure (c). The first may be eliminated by subtracting a constant value from all the final calculated values in the survey.

The second may be eliminated by measuring diurnal changes and subtracting them from the results at each station. The residual after these corrections are made is known as the anomaly value.

SETTING UP BASE STATIONS

To obtain a graph showing the variation of the magnetic field during a day it is necessary to establish a series of stations over the property whose value is known. These base stations should be so placed that one or another may be conveniently read at least every hour. The base line across a property is useful for a line of such stations, as are tie lines which are not more than one half mile from the base line.

To set out the base stations the following procedure is suggested.

1. Read base A, then B, then C, then D and return to A.
2. Read base D,E,F,G and return to D.
3. Continue until all base stations are covered.
4. Tabulate the results as in the example below -

STATION	TIME	READING GAMMAS	DIURNAL CORRECTION	CORRECTED BASE VALUE
Base A	9.00	1190	0	1190
Base B	9.10	1060	1/4 X 35=9	1051
Base C	9.20	828	2/4 x 35=18	810
Base D	9.30	1245	27	1228
Base A	9.40	1225	35	1190

Note that base A has increased from 1190 to 1225 in 40 minutes. To bring the value back to 1190 one must subtract 35 gammas. The assumption is made that the increase has been regular hence Base B must have 1/4 x 35 subtracted and so on. A continuation of the calculation is carried out for all base stations.

OBTAINING AND CALCULATING FIELD RESULTS

OBTAINING AND CALCULATING FIELD RESULTS

CHOICE OF STATION INTERVAL

Choice of Station Interval

The distance between stations is determined by the width of the bodies which it is required to detect and by the depth of overburden. The normal station interval will usually be dictated by the field supervisor or by the head office but the operator is responsible for outlining the shape of anomalies by taking intermediate stations and for generally adjusting normal procedure to suit local conditions.

1. Read a base station.
2. Read field stations for approximately one hour.
3. Read the same or another base station.
4. Record the Results as in the following table.

STATION STATION	TIME TIME	READING GAMMAS READING GAMMAS	DIURNAL CORRECTION DIURNAL CORRECTION	CORR. VALUE CORR. VALUE	ANOMALY VALUE ANOMALY VALUE
Base A	8 00	1124	+66	1190	190
1	8 03	1347	+63	1410	410
2	8 06	615	+60	675	-375
3	809	-522	+58	-1380	-2380
18	8 57	1207	+18	1225	225
19	9 00	1246	+15	1261	261
20	9 03	1257	+13	1270	270
Base B	9 06	1040	+11	1051	51

Note the diurnal added is sufficient to bring the corrected value of the base stations to those established previously. The diurnal has decreased from 66 at 8.00 o'clock to 11 at 9.06, a change of 55 during 21 equal time intervals. Thus station 1 will be increased by 66 minus 1/21 x 55 which is approximately 63. Station 20 will be increased by 66 minus 20/21 x 55 which is 13 approximately.

After several days work have been done an inspection of the corrected values will indicate the proper constant value to subtract to reduce the majority of the values to as low a numerical value as possible. For the purpose of illustration it has been assumed that the constant value is 1000.

6. The anomaly value is next plotted on a map of the property, and contours drawn and interpretation made.

Appendix to Report

The Vertical Loop E.M. Method

Description

The equipment consists of two light coils, one receiver with clinometer used in conjunction with amplifier and earphones and one transmitter with battery pack.

When taking readings the plane of the transmitting coil is vertical and the plane of the receiving coil is horizontal. It is important that the transmitter coil is oriented so that the long axis is pointing at the receiver coil. When no conducter is present the receiver coil should null close to zero degrees (i.e. horizontal), either side of a conductor dip angles greater than two degrees will be measured. When recording dip angles the dip is designated either north or south with N-S picket lines and east or west with E-W picket lines. The degree of the dip angle depends on the size of the conductor,the length, the depth and the type of traverse being used. (see survey procedure) It should be noted that the farther the coils are apart the greater the depth penetration of the signal. Because the signal strength decreases rapidly with distance from the coil, the seperation between coils is limited to 500 or 600 ft.

Survey Procedure

Two types of traverses are used, the parallel line method for reconnaissance, and the stationary transmitter setup for detailling the conductor.

For the parallel line traverse the transmitter and receiver move together on two adjacent lines usually 400 ft.apart. Readings are taken every 100 ft. After the whole property has been covered in this way, the transmitter is setup on a crossover point (see discussion below), and the receiver operator reads lines on either side of the transmitter with 50 ft. station interval. The transmitter is then setup on newly established crossover point (if any) and the receiver operator continues readings on the next line. This procedure continues until no crossovers are obtained.

It is important that all crossovers found by the parallel line method be detailed. That is if a parallel line crossover is on say line 12 W. and using this for trans. setup, detail on line 8 W., and line 12 W. should be reread so as to establish the exact position of the crossover.

What is a Crossover?

A crossover is the station where the dip angle is zero degrees and the dip angles on either side of this point are such that imaginary axis perpendicular to the plane of the coil tilts will dip towards the position of zero degrees null.

Appendix to Report

The Vertical Loop E. M. Method

Description

The equipment consists of two light coils, one receiver with clinometer used in conjunction with amplifier and earphones and one transmitter with battery pack.

When taking readings the plane of the transmitting coil is vertical, and the plane of the receiving coil is horizontal. It is important that the transmitter coil is oriented so that the long axis is pointing at the receiver coil. When no conductor is present the receiver coil should null close to zero degrees (i.e. horizontal), either side of a conductor dip angles greater than two degrees will be measured. When recording dip angles the dip is designated either north or south with N-S picket lines and east or west with E-W picket lines. The degree of dip angle depends on the size of the conductor, the length, the depth and the type of traverse being used. (see survey procedure) It should be noted that the farther the coils are apart the greater the depth penetration of the signal. Because the signal strength decreases rapidly with distance from the coil, the separation between coils is limited to 500 or 600 ft.

Survey Procedure

Two types of traverses are used, the parallel line method for reconnaissance, and the stationery transmitter setup for detailing the conductor.

For the parallel line traverse the transmitter and receiver move together on two adjacent lines usually 400 ft. apart. Readings are taken every 100 ft. After the whole property has been covered in this way, the transmitter is setup on a crossover (see discussion below), and the receiver operator reads lines on either side of the transmitter with 5 ft. station interval. The transmitter is then set up on newly established crossover point (if any) and the receiver operator continues readings on the next line. This procedure continues until no crossovers are obtained.

It is important that all crossovers found by the parallel line method be detailed. That is if a parallel line crossover is on say line 1 W. and using this for trans. setup, detail on line 8 W. produces a crossover then the transmitter should be setup on line 8 W., and line 1 W. should be reread so as to establish the exact position of the crossover.

What is a Crossover?

A crossover is the station where the dip angle is zero degrees and the dip angles on either side of this point are such that imaginary axis perpendicular to the plane of the coil, tilts will dip towards the position of zero degrees null.

When obtaining a null it will be found that a perfect null will not be obtainable. That is the lowest obtainable sound of the signal will be the same for several degrees of the dip of the coil. This is the null width and should be recorded. The dip is the average of this null width. The results are recorded as in table I.

Vertical Loop Electromagnetic Survey

Station	Null Width		Dip	
	Transmitter on L4E, Receiver L8E			
0/00	2N	2S	0	
1S	6N	1S	3N	Parallel line or broadside method
2S	20N	16N	18N	
3S	2S	6S	4S	
etc.				
	Transmitter on L8E at 2/90S, Receiver L4E			
0/00	6N	0	3N	
0/50S	15N	10N	13N	Detail method
1/00S	35N	25N	30N	
1/50S	40N	34N	37N	

I Herbert Douglas McLeod address 673 Norman Avenue North Bay Ontario hereby declare that:

(1) I am a graduate of Queen's University in the course of Geology and Mineralogy in 1946.

(2) I am a paid up member of the Association of Professional Engineers of the Province of Ontario.

(3) I am District Geologist for Geophysical Engineering & Surveys Ltd., North Bay, Ontario.

(4) I have actively practised my profession for a period of 28 years.

(5) I have knowledge of the work described in this report having planned the same, having examined the geophysical survey results and geology in the field and having been partially responsible for the final decision on the disposition of the group.

Dated at North Bay, Ontario this 24th day of April 1972.

H.D. McLeod P. Eng.

H. D. McLeod (P. Eng.)

52011SW0041 52011SW0018 MCVICAR LAKE

File 2842

RECEIVED

APR 26 1972

PROJECTS SECTION

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

900

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey: Geophysical - Geological

Township or Area: MacVicar Lake Area

Claim holder(s): F. Hoey

Author of Report: C. Idziszek

Address: 2189 Algonquin Avenue - North Bay, Ontario

Covering Dates of Survey: Sept 3/71 to Oct. 5/71 (linecutting to office)

Total Miles of Line cut: 12.2

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
--Electromagnetic	40
--Magnetometer	20
--Radiometric	
--Other	
Geological	20
Geochemical	

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer ______ Electromagnetic ______ Radiometric ______ (enter days per claim)

DATE: April 24, 1972 SIGNATURE: W. D. McLeod, Author of Report / Agent

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)		
	EM		Mag
KRL	310347 Geology only		*X
	310348		*X
	310349		
	310350		
	1/3	310351 (not covered)	1/3 X
	1/2	310352	1/2 X
	1/2	310353	1/2 X
	1/2	310354	1/2 X
		310355	
		310356	
		310357	
		310358	
		310359	
		310360	
	1/3	310361	1/3 X

* Geology Only

X Part Coverage.

13 X 40 = 520 ÷ (13 + 2)
= 34.7 days EM
17.3 days Mag

If space insufficient, attach list

TOTAL CLAIMS 15

PROJECTS SECTION

Res. Geol. ______ Qualifications This 63.1050

Previous Surveys LD

Checked by ______ date ______

GEOLOGICAL BRANCH ______

Approved by ______ date ______

GEOLOGICAL BRANCH ______

Approved by ______ date ______

OFFICE USE ONLY

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS

(1) Magnetometer - 1245 (1) - 1260
(2) V.E.M. - 600 (2) - 600
Number of Stations (3) VLF - E.M - 37 Number of Readings (3) - 37

Station interval: 100 feet, 50 feet and 25 feet

Line spacing: 400 feet and 200 feet

Profile scale or Contour intervals: E.M. profiles 1"=20°, magnetics - 1000 gammas
(specify for each type of survey)

MAGNETIC

Instrument: Sharpe Fluxgate Model MF 1 Magnetometer,

Accuracy - Scale constant: 20 gammas per scale division

Diurnal correction method: Hourly on base stations

Base station location: See drawing # 4102

ELECTROMAGNETIC

Instrument: (1) Sharpe SE 200 VEM Unit (2) Crone Radem VLF Unit

Coil configuration: (1) Vertical (2)

Coil separation: (1) 400 feet (3) Not applicable

Accuracy

Method: ☐ Fixed transmitter ☐ Shoot back ☐ In line ☒ Parallel line

Frequency: (1) 1250 c.p.s. (2) Cutler Maine
(specify V.L.F. station)

Parameters measured: Tilt angles.

GRAVITY

Instrument

Scale constant

Corrections made

Base station value and location

Elevation accuracy

INDUCED POLARIZATION - RESISTIVITY

Instrument

Time domain Frequency domain

Frequency Range

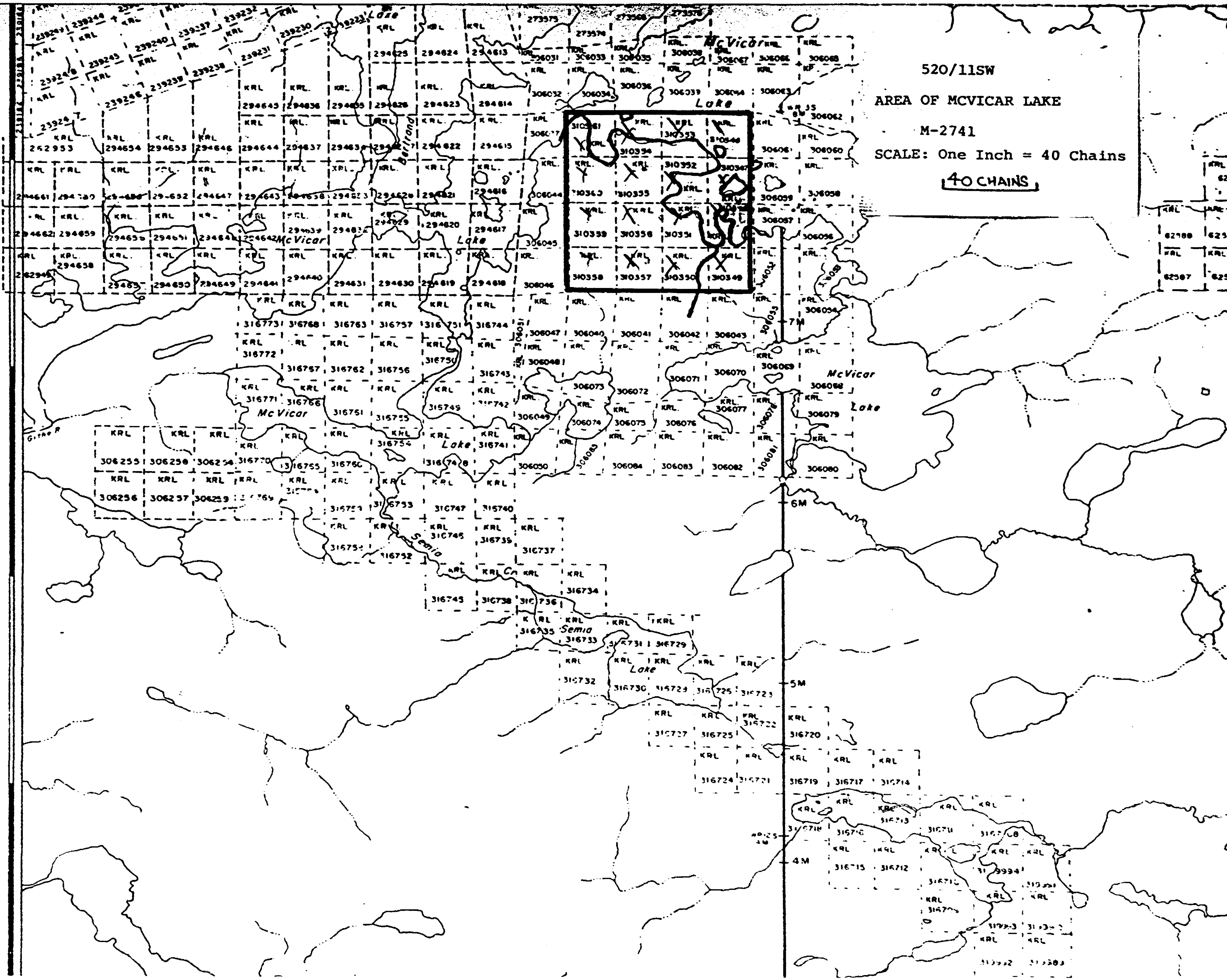
Power

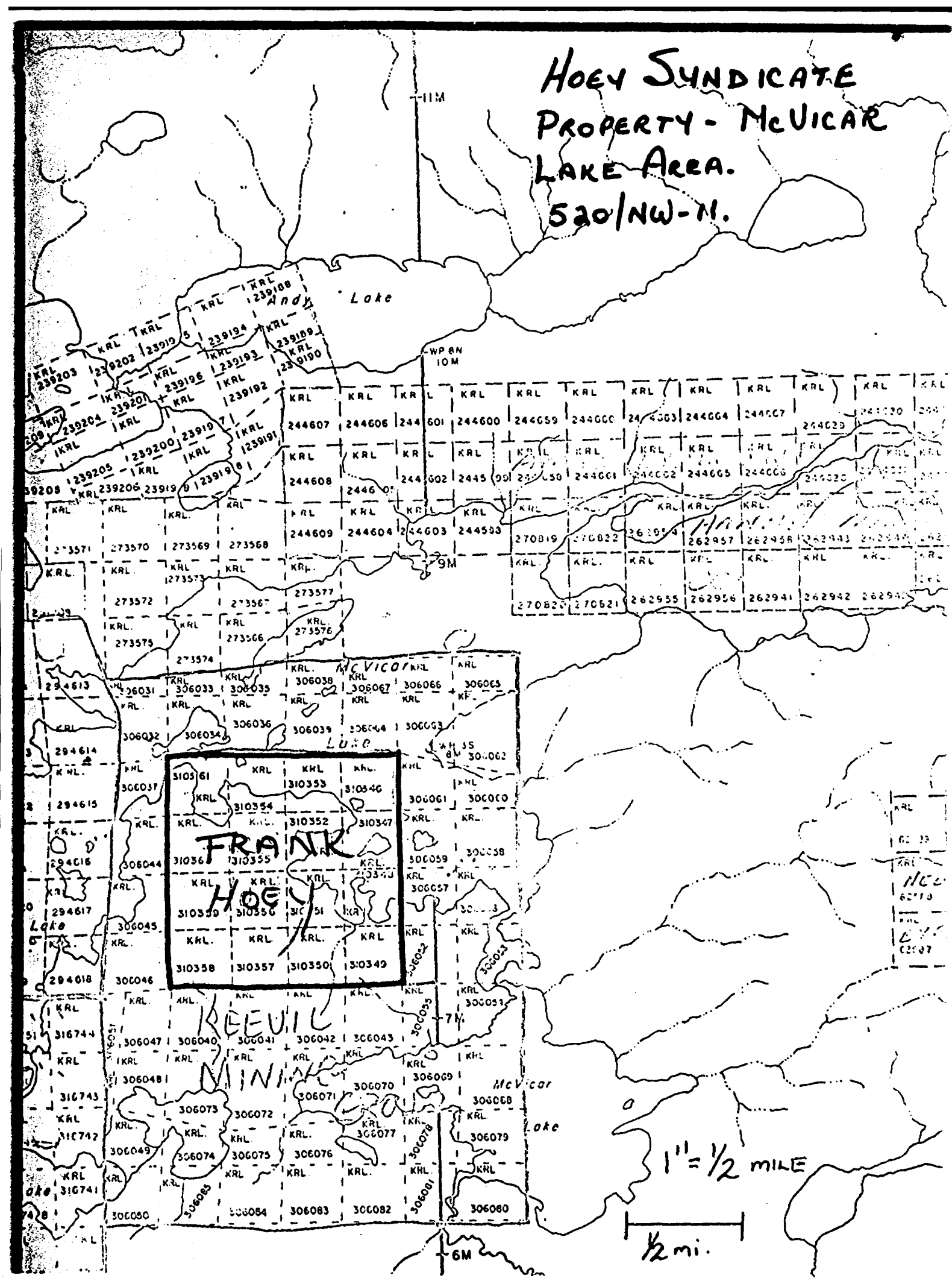
Electrode array

Electrode spacing

Type of electrode

STOUGHTON LAKE (M.2043)




HOEY SYNDICATE
PROPERTY - McVICAR
LAKE AREA.
520/NW-N.
Andy Lake
McVicar Lake
FRANK HOEY
KEEVIL MINING
1" = ½ MILE
½ mi.

File 2.842

ONTARIO

Ministry of Natural Resources

Room W 1617
Parliament Buildings
Toronto 182, Ontario

416:965-6918

October 25, 1972

Mr. V. Tukkanen
Mining Recorder
Ontario Government Building
Red Lake, Ontario

Dear Sir:

Re: Mining Claims KRL. 310347 et al, McVicar Lake, File 2.842

The Geophysical (Electromagnetic and Magnetometer) and Geological assessment work credits as listed with my Notice of Intent dated October 10, 1972 have been approved as of the date above. Please inform the recorded holder and so indicate on your records.

Yours very truly,

Fred W. Matthews
Supervisor
Projects Unit

OJ/mw

cc: Geophysical Engineering and Surveys Limited
2189 Algonquin Avenue
North Bay, Ontario
Att: H. D. McLeod

cc: Frank Hoey
125 Sheppard Avenue East
Willowdale, Ontario

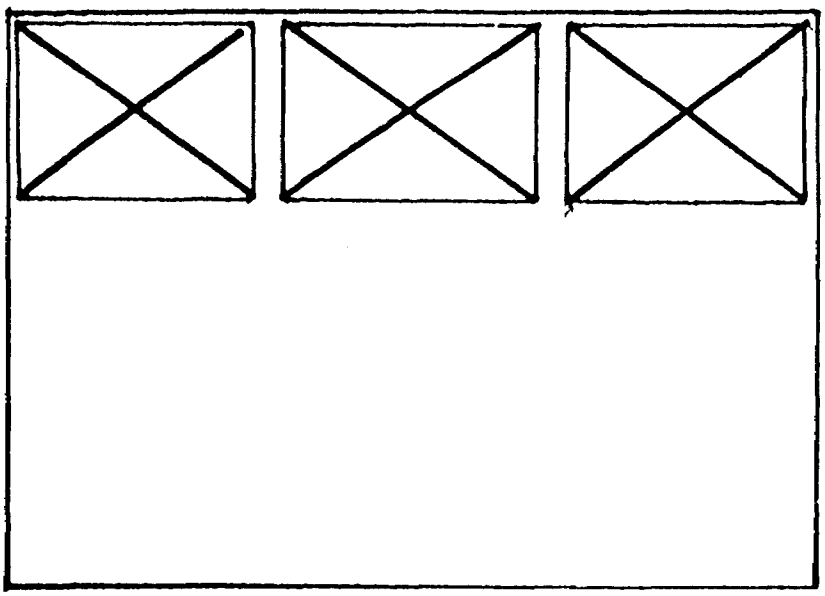
cc: Resident Geologist
Red Lake, Ontario

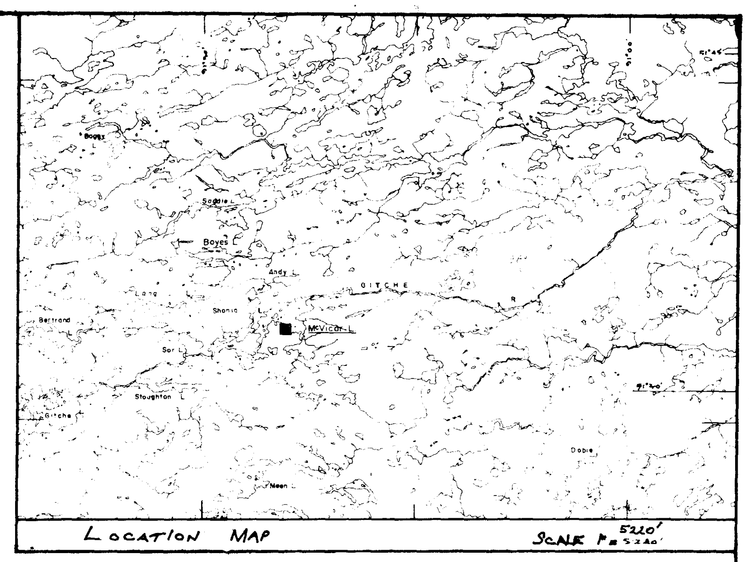
SEE ACCOMPANYING MAP(S) IDENTIFIED AS

520/11SW-0018 #1-3

LOCATED IN THE MAP CHANNEL IN THE FOLLOWING SEQUENCE

(X)





LOCATION MAP

SCALE 1" = 5220'

Sample #	LENGTH	Cu %	Ni %
520	35'	0.15	0.08
521	5'	0.36	0.26
522		0.12	0.12
523		0.04	0.02
524	27'	0.01	0.01
525	10'	0.01	0.01
526	8'	0.01	0.01
527	11'	0.14	0.11
528	24.5	0.07	
529	23.0	0.05	0.05

1 MV — Mafic Volcanics
2 Di QDi — Diorite, Quartz Diorite
3 Ga QGa — Gabbro, Quartz Gabbro
4 A GoA — Anorthosite, Gabbroic Anorthosite
5 AGa — Anorthositic Gabbro
6 — Unconformable Dyke Rocks (pegmatitic feldspar, pyroxene feldspar)
7 — Lamprophyre

— Trend of foliation, banding, strike and dip of banding
— Foliation - inclined, vertical
— Jointing - inclined
— Outcrop, ridge, small outcrop
— Swamp
— Geological Contact - defined, assumed, inferred
— Claim post location

cg — course grained
mg — medium grained
fg — fine grained
s stain — sulfide stain
mag — magnetite
py — pyrite
cp — chalcopyrite
po — pyrrhotite
born — bornite
ni — nickel (probable pentlandite)
por — porphyritic
dissem — disseminated
fol — foliation

Geology done by C Idziszek

GEOLOGICAL MAP

Mc VICAR LAKE GROUP

McVICAR LAKE AREA
DISTRICT OF KENORA

HOEY SYNDICATE

GEOPHYSICAL ENGINEERING & SURVEYS LTD.

52ϕ/11SW-0018, #3

	971	JOB 1108	NTS 52-O/1	Dwg 4104

2892

322

310361

310354

310353

310346

310360

310355

310352

310347

310359

310356

310351

310348

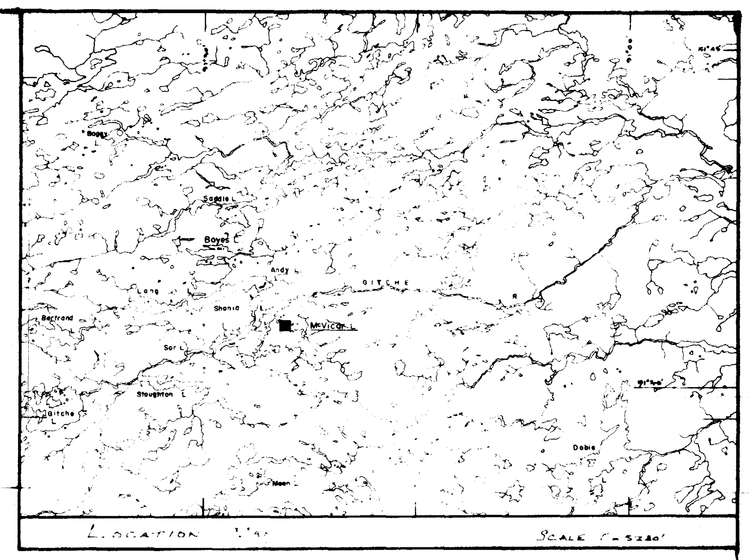
310358

310357

310350

310349

L16W L12W L8W L4W L4E L8E L12E L16E L20E



ALL READING SHOWN ARE IN GAMMAS

TO AVOID CONFUSION, CONTOURS RUNS FROM 1000 GAMMAS TO 10000 GAMMAS IN INTERVALS OF 1000 GAMMAS. READING GREATER THAN 10000 GAMMAS ARE IN INTERVALS OF EACH 10000 GAMMAS RISE WHERE POSSIBLE.

INSTRUMENT- SHARPE FLUXGATE MAGNETOMETER MF-1
OPERATOR- FRED BLAKE

MAGNETOMETER SURVEY

Mc VICAR LAKE GROUP

McVICAR LAKE AREA
DISTRICT OF KENORA

HOEY SYNDICATE

BY
GEOPHYSICAL ENGINEERING & SURVEYS LTD.

J. D. McLEOD

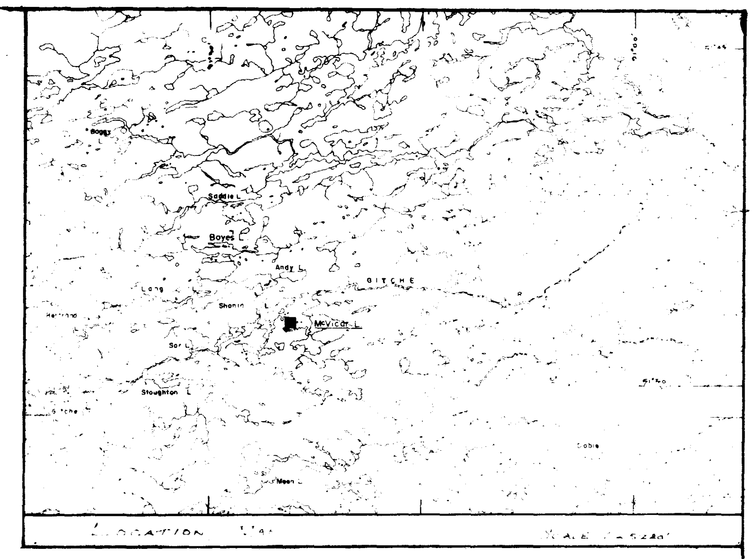
2.842

Drawn by | Date 9-71 | Job 1108 | NTS 52 O/ | Dwg. 4102

52Ø/11SW-0018, #1

210

322



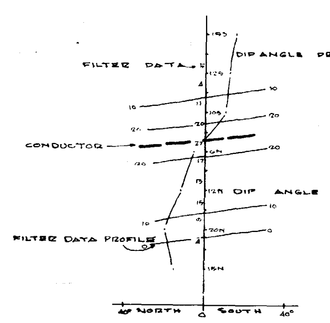
310361 310354 310353 310346

310360 310355 310352 310347

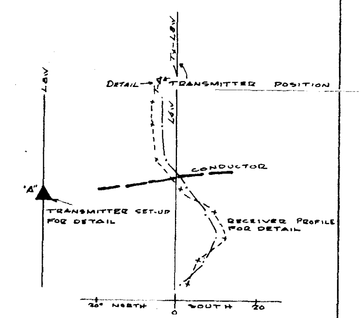
310359 310356 310351 310348

310358 310357 310350 310349

L20W L16W L12W L8W L4W L0-00 L4E L8E L12E L16E L20E L24E L28E L32E



TRANSMITTER STATION -
INSTRUMENT- CRONE RADEM VLF UNIT
OPERATOR - A MACDONNELL



INSTRUMENT - CHARGE SE 200 VEM UNIT
OPERATOR - A MACDONNELL

VEM — VLF ELECTROMAGNETIC SURVEY

Mc VICAR LAKE GROUP

IN THE

McVICAR LAKE AREA
DISTRICT OF KENORA

FOR

HOEY SYNDICATE

BY

GEOPHYSICAL ENGINEERING & SURVEYS LTD.

H. D. McLEOD

0 200 400 600

2.842

Drawn by — Checked by —	Sept. 1971	Job 1108	NTS 52-0-11	Dwg. 4103

52ϕ/11SW-0018, #2