GEOPHYSICAL REPORT

ON THE

RANSOM LAKE PROJECT CUNNINGHAM TOWNSHIP

for

INGAMAR EXPLORATIONS LIMITED

CONNAUGHT, ONTARIO, CANADA
MAY-JUNE, 1981

T.N.J. HUGHES B.Sc. (DUNDEE)

2.4162

L.D

1. INTRODUCTION

The report contains the results of V.L.F.-E.M. electromagnetic, magnetic and geological surveys completed in the Ransom-Allen Lake area, Cunningham Township during May - June 1981, by Ingamar Explorations Limited, Connaught. The results and examination of previous data on the area will provide recommendations for further gold exploration in the area. Magnetic and V.L.F.-E.M. surveys were carried out on claims 619098 - 619112 inclusive.

2. LOCATION AND ACCESS

The property consists of fifteen (15) mining claims in Cunningham Township, District of Sudbury, Porcupine Mining Division, NTS Reference Sheet No. 41010E. The claims are 619098 - 619112 inclusive.

Cunningham Township is approximately eighty (80) miles southwest of Timmins. (Fig.1)

Access is by plane from Ivanhoe Lake to the North of the property.

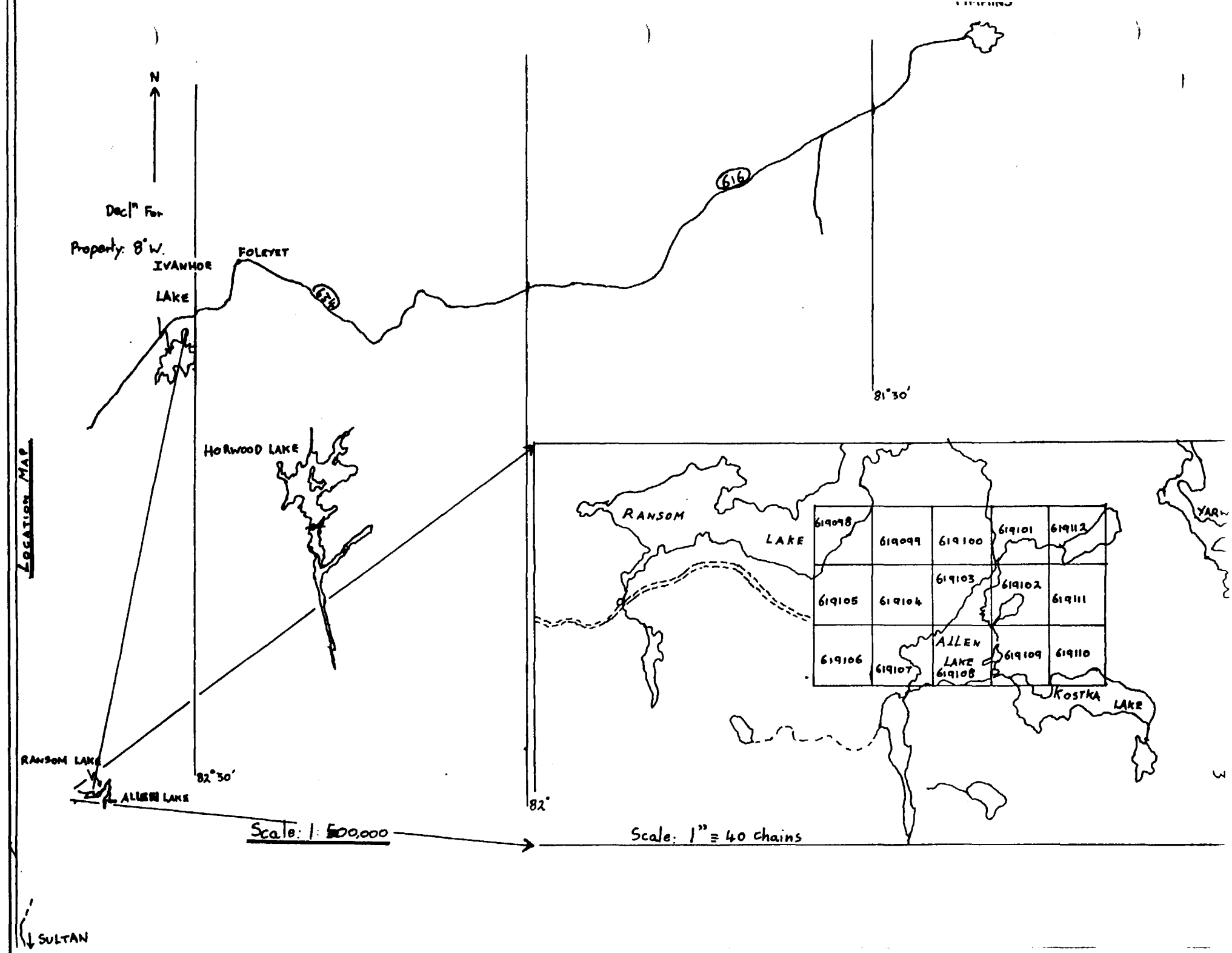

LOCATION MAP
N
Decl'n For
Property: 8°W.
IVANHOE
LAKE
FOLEYET
624
616
81°30'
HORWOOD LAKE
RANSOM
LAKE
619098
619099
619100
619101
619112
619103
619102
619105
619104
619111
ALLEN
LAKE
619106
619107
619108
619109
619110
KOSTKA
LAKE
YAR
RANSOM LAKE
ALLEN LAKE
82°30'
82°
SULTAN
Scale: 1: 500,000
Scale: 1" = 40 chains

TABLE OF FORMATIONS

Quaternary

Pleistocene: Sand and Gravel

Pre-Cambrian

Keweenawan: Olivine diabase

Matachewan: Olivine diabase

Intrusive Contact

Algoman: Granite, granite gneiss, quartz and feldspar, porphyries, aplite, felsite, diorite, quartz diorite, pegmatite.
Lamprophyre (minette, camptonite, augite lamprophyre), basalt porphyrite

Intrusive Contact

Pre-Algoman: Granodiorite, quartz diorite, diorite, quartz gabbro, gabbro, quartz diabase, diabase.
Peridotite.

Intrusive Contact.

Timiskaming (?): (Ridout Series) Complex of sediments including conglomerate, quartzite, greywacke, arkose, slate and various volcanic members similar to the Keewatin.

Erosional Contact.

Keewatin: Basic to acid lavas including basalt, diabase, diorite, gabbro, andesite, dacite, trachyte, ryolithe, ellipsoidal or pillow lava, amygdaloid basalt, tuff and agglomerate, flow breccia, hornblende, and chlorite schists.

Iron Formation: Associated with Keewatin rocks and Timiskaming in North of area. Includes chert and chert breccia.

(from O.D.M. Report, Volume LI, Part VIII, 1942)

3. GEOLOGY

The property is within the Swayze Greenstone Belt, a part of Archaean mafic to intermediate, foliated metavolcanic rock sequence forming the Superior Province.

Regionally, the Belt has and E.W. trend, containing mafic metavolcanics and clastic metasediments. According to a report by Gordon, J.B. et al 1979, Gold Deposits of Ontario, Part 2: Part of District of Cochrane, Districts of Muskoka, Nipissing, Parry Sound, Sudbury, Timiskaming and counties of Southern Ontario; Ontario Geological Survey, Mineral Deposits Circular 18, p.56 (253p), the gold bearing zone is in close proximity to a North trending fault, the Allen Lake Fault. Within the area surveyed (May-June 1981), the geology consists of metasediments and some metavolcanics, west of Allen Lake. They appear to be cut off by the Fault. The metasediments (Timiskaming type sequence) are generally greywacke and quartzites, and rarely, marble intercolated within quartzite in andesitic schists. The latter also on the E. of the Fault, but are Keewatin age, and are poorly differentiated into basalt and andesitic schists, and occasional hornblende porphyry outcrops. In the North of the property, there outcrops thin dolomite bands conformable with andesitic schists and chert.

Reconnaissance geological mapping was confined to an area covering approximately one square mile (see enclosed map). Areas of outcrop were confined almost exclusively to areas adjacent to Allen

Lake, Allen Creek and nearby lakes. No previous detailed mapping has been carried out on the property.

The local structural trend is E.N.E.-W.S.W. to N.E.-S.W. in contrast to the regional E.-W. trend. Shearing is not common and no major folding was observed. The Allen Lake Fault is very poorly exposed on the West side of the Lake, and its position on the map is not precise. Fracture spacing (N.-S. orientation) increases towards the fault, with an increase in observable mineralisation in the form of sulphide ore formation and quartz veining, the latter possessing no distinct preferred orientation.

4. ECONOMIC GEOLOGY

The property was surveyed for the location of gold showing. Geological mapping revealed no visible gold mineralization. Sulphide minerals consist of pyrite, pyrrhotite and chalcopyrite which occur mainly within andesite schist host rock where adjacent to quartz veins. Concentrations of ore minerals are uncommon, being disseminated, with a greater percentage content within the host rock than within the quartz veins. The veining has a highly variable orientation. Width similarly varies from microscopic to twenty inches. It is not confined to any particular rock type.

Mineralization decreases rapidly away from the Allen Lake Fault, it occuring to a maximum width of 1000 feet across the Fault. (Refer to map for locations)

Sampling was carried out on selected localities for future gold assaying, but, to date, no results are available.

According to N.W. Bartley (Report on Prospecting in the Ridout-Swayze Area 1959), in his concluding remarks concerning exploration in the Ridout-Swayze Area, "the area is a potential gold producer". Exploration methods today should utilise geophysical, geochemical and geological techniques, including V.L.F.-E.M., I.P. and magnetometer. These would be the logical methods for determining the location and potential of mineral deposits.

A report (unknown) on the Allen Lake Gold showing indicates that "free gold can be readily panned in generous quantities along the faulted fracture (Allen Lake Fault), where exposed above the water level of Allen Lake.

5. PREVIOUS WORK

Swayze-Huycke Gold Mines Ltd. constructed a mining plant in March 1934 and sunk a two-compartment vertical shaft sunk to a depth of 150 feet and level at 125 feet. Operations were suspended in September of that year, with approximately 31 feet of drifting and 100 feet of crosscutting completed. A gold showing, apparently at surface, was not found below ground.

In 1939, the property was sold to Olive Gold Mines Ltd. Flint Rock Mines Ltd. restaked in 1961 and a preliminary survey by D.C. McKecknie, P. Eng., for "Flint Rock", revealed the existence of a few shallow pits, now water filled on the East of an island approximately 1700 feet south of the shaft. The writer was unable to find any showings near the shaft.

In 1962-1963, diamond drilling (number of holes and footage unknown) was carried out.

6. SURVEY PARAMETER

6.1 Linecutting

Ribboned lines for surveys were completed during May and June of 1981 by Ingamar Explorations Limited. An E.W. baseline was established with crosslines at 400 feet intervals. All lines were chained and ribboned at 100 feet intervals. Approximately fifteen (15) miles of line were ribboned, brushed out and chained.

6.2 V.L.F. - E.M. Survey

Approximately fifteen (15) miles of E.M. were carried out on the property with stations at 100 feet intervals. Cutler, Maine, was the transmitting station with a survey frequency of 17.8 KHz.

6.3 Magnetic Survey

Fifteen (15) miles of magnetometer surveying were carried out on the property. Station observations were at 100 feet intervals on the crosslines and 400 feet on the baseline.

7. INSTRUMENTATION

7.1 VLF Survey

The VLF-EM method employs as a source, one of the numerous submarine communications transmitters in the 15 to 25 KHz band located throughout the world. At the surface of the earth these radio waves propagate predominantly in a single mode along the earth-air interface. This mode is known as the "surface wave". Over flat homogeneous ground in the absence of vertical conductive discontinuities the magnetic field component of this radio wave is horizontal and perpendicular to its direction of propagation.

Where non-horizontal structures such as faults, contacts and conductors give rise to changes in ground conductivity, secondary modes are generated which produce a vertical component of the magnetic field. This produces an elliptical polarization of the total field in a plane perpendicular to the direction of propagation.

Commercial VLF instruments enable detection of disturbing structures by measuring the tilt angle of the major axis of the polarization ellipse. On flat homogeneous ground the tilt angle will be zero, but in the vicinity of conducting disturbances it will acquire a finite value.

Direction of tilt indicates direction of the disturbing structure. Ability to deduce such parameters as depth, depth extent, dip and width of anomalous structures is minimal. Fortunately, this does not seriously affect location of points where VLF profiles cross the upper limit of dipping structures which can be identified as areas of greatest change in tilt angle per unit of distance.

The transmitting station used during the survey was Cutler, Maine at 17.8 KHz.

The data is presented as profiles with positive to the left, negative to the right. The instruments specifications are given in Appendix I.

7.2 Magnetometer Systems

A McPhar GP-70 Proton Magnetometer was used to survey the grid. This system utilises the precession of spinning protons of a hydrogen atom within a hydrocarbon fluid. These spinning magnetic dipoles (protons) are polarized by applying a magnetic field using a current within a coil of wire. When the current is discontinued the protons precess about the earth's magnetic field and in turn generate a small current in the wire. This frequency of precession is proportional to the earth's total magnetic field.

This instrument is read directly in gammas which is the absolute value of the earth's total field for that station.

Correction of the magnetic data for instrument and diurnal drift was done by re-occupying previously established base stations periodically (approximately every 2 hours) during the course of the survey. In this manner a drift curve can be established and adjustment of the field readings can be made such that they are all related to an established datum. Instrument specifications are presented in Appendix I.

8. GEOPHYSICAL INTERPRETATION

Correlations between magnetic and E.M. anomalies is not good; however, the surveys have delineated several localities which are suitable for further surveying and possible drilling.

In general, the areas show several E-W trending linear anisotropic zones and a N.E.-S.W. trending linear intrusion.

8.1 V.L.F. and E.M.

Conductive areas of interest are lettered on the derivative map.

Conductor A

A strong conductor, found from line 4E+800S to line 33E+1000S, opening slightly to the East. The conductor is probably an E-W fault, with a conductor depth estimated at near surface to 45 feet. The profile shows a narrow, well-delineated conductor and is continuous across the lines mentioned above.

Conductor B

Located North of and parallel to Conductor A, from line 4+00E to 37+00E. The profile is broad, but this is probably an overburden effect, the anomaly being located within swamp. Conductor depth estimate is approximately 60-90 feet. The body is linear and probably narrower than is suggested from the "I.P. - Quad" map.

Conductor C

In the East of the property, located on lines 60+00E to 64+00E, a N.E.-S.W. trending anomaly, open to the East. Conductor depth estimate (for a presumed linear, steeply dipping body) is 0 to 30 feet.

Conductor D

In reality, two separate bodies, possessing high filtered values. Their limited extent may preclude further investigation. Mineralisation in outcrops is poor and their significance is unclear.

8.2 Magnetic Survey

Notably, the survey outlines a major positive anomaly, trending approximately N.E.-S.W. from the south of line 16+00E to the North of line 53+00E. The feature appears as a strong linear negative outline on air photograph maps of the area. It curves northwards, beyond the property, and it is interpreted as a dyke conformable with the regional structural trend, which is E.-W. in the West of the property, and curves to a more N.-S. direction in the East.

Localisation of anomalies is a common feature, and it is frequently coincidental with E.M. anomalies where the lines intersect. The N.E.-S.W. trending anomalies show sharp gradients indicating a deep source and one which is relatively constant along the area surveyed East of Allen Lake. There are three discrete magnetic anomalies with less steep

gradients. The anomaly centred on line 53+00E may represent a localised magnetic source on the anomaly highlighted by the main E.M. conductor trending E.W. (Conductor A). The anomaly centred on line 59+00E and near the Baseline is broad, discrete and probably a disseminated magnetic source or a body at depth. There is no strong magnetic gradient.

The anomaly in the S.E. of the property reflects a swing in the regional trend to E.-W. again. The profile is less well-defined than the N.E.-S.W. narrow linear anomalous zone, is lenticular and probably formational in nature.

9. CONCLUSIONS

Correlation between V.L.F.-E.M. and the magnetic survey is not common, through the major exception forms the most promising locality for future prospecting, namely at the intersection of Conductor A and the N.E.-S.W. magnetic anomaly zone.

The Allen Lake Fault, a N.S. trending linear fracture, is poorly defined, being masked by the other features mentioned previously, although the magnetic and E.M. anomalies along line 37+00E to 42+00E north of the Baseline define a N.-S. trending zone. Values from both surveys over the disused mine on the East shore of Allen Lake are poor, revealing no major structure, save for a high value on the Fraser plot map in the South of line 47+00E. This anomaly may represent the fault dipping East at depth.

The main features are the N.E.-S.W. linear magnetic zone and Conductor A.

10 RECOMMENDATIONS

The occurrence of sulphides in the area around Allen Lake, in the form of pyrite, chalcopyrite and pyrrhotite suggests there is a possible gold-sulphide association. An I.P. survey is recommended for further surveying in order to delineate possible ore concentrations.

Suggested areas for more detailed surveying should include the following:
Close spaced surveying (including I.P. and geology) along N.E.-S.W. linear magnetic zone; the most suitable areas for gold-sulphide association within this zone are lines 16+00E at 1800S to 2000S, line 8+00E - 900S, line 20+00E - 900S and on the Allen Lake Fault (situated just East of line 37) from 700 feet North of the Baseline.

Sulphide mineralisation occurs South of the Baseline on line 37. Outcrop is very poor North of the Baseline, but it can be presumed that mineralisation continues further North.

The aforementioned sites are suitable for later diamond drilling to a depth not exceeding 250 feet, with inclination at approximately 50^{o}, which is necessary to intersect the steeply dipping zones.

Further surveying East of Allen Lake should include the S.E. magnetic anomalous zone, just North of Kostka Lake.

It is also recommended that since the conductive and magnetic anomalies East of Allen Lake continue East, off the property, an area should be staked and surveyed which would outline the eastern extent of the anomalies.

T.Hughes B.Sc.

T.N.J. Hughes
B.Sc. (Dundee)
Geologist

ADDENDUM

Ransom Lake

Recommendations for further prospecting on Ransom Lake Property:-
Ref. E.M. Mag maps

1) Delineate E.M. and Mag anomalies marked on map. Further surveying over the property should clearly outline potential sample sites, with a view to trenching and possible drilling.
2) Coincidence of E.M. and Mag anomalies are a priority feature as regards later surveying.
3) Anomaly shapes for both surveys indicate that they are generally linear in geometry, with a relatively shallow depth to the conductor/magnetic body.
4) Possible Gold-pyrite associations on the property could be located using I.P. instrumentation.
5) Sampling and trenching should not be undertaken until a complete geological survey of the property has been carried out.
6) The presence of relatively poor results from geophysical surveys in the area of the old mine shaft does not preclude the existence of a potential ore body. It is suggested that the shaft should be pumped out and examined before a final report on this area is completed.

7) The existence of heavy mineral deposition in rivers and streams in the locality of the Allen Lake Fault should warrant an analysis of sediment using panning techniques. (A 1960's report indicated that good gold results were

obtained in the vicinity of the fault.)

8) The extent of the E.M. and Mag anomalies in the East of the property is not known as they obviously continue off the property. These anomalies cover the Keenatin metavolcanic-sedimentary sequence (Greenstone Belt) which forms part of the Ridout-Swayze area, an area which has been heavily prospected in the past and continues to this day. It is therefore suggested that an additional number of claims should be staked to the East, adjoining the present property possibly covering the airborne magnetic anomaly of 60,500 gammas East of Allen Lake.

CERTIFICATE

I, Toby Hughes of Matheson, Ontario, hereby certify that:

1) I hold a Bachelor of Science Degree in Geology from the University of Dundee, Scotland, having graduated in July of 1980.

2) I have practised my profession in exploration continuously since graduation.

3) I have based conclusions and recommendations contained in this report on knowledge of the area, my previous experience, and on results of the field work conducted on the property during May to June, 1981, which was carried out under my overall supervision.

4) I hold no interest, directly of indirectly, in this property other than professional fees, nor do I expect to receive any interest in the property or in Ingamar Explorations Ltd. or any of its subsidiary companies.

T. Hughes

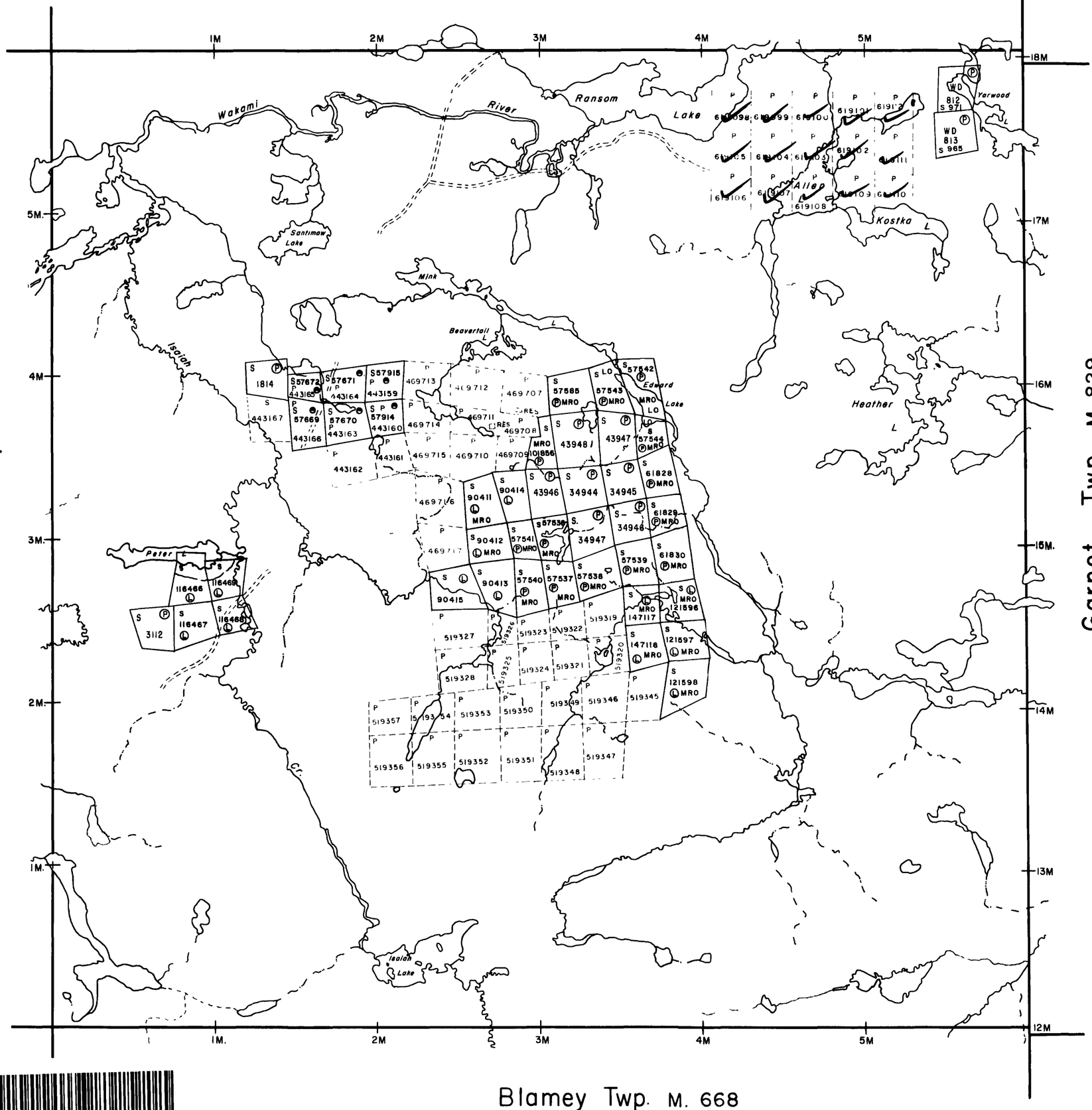
Connaught, Ontario, Canada T.N.J. Hughes, B.Sc.

Swayze Twp. M.1150

Greenlaw Twp. M. 895

Garnet Twp. M. 829

Blamey Twp. M. 668



THE TOWNSHIP OF

CUNNINGHAM

DISTRICT OF SUDBURY

PORCUPINE MINING DIVISION

SCALE: 1-INCH=40 CHAINS

LEGEND

PATENTED LAND	(P)
CROWN LAND SALE	C.S.
LEASES	(L)
LOCATED LAND	Loc.
LICENSE OF OCCUPATION	L.O.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
ROADS	
IMPROVED ROADS	
KING'S HIGHWAYS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	
CANCELLED	C.
PATENTED FOR SURFACE RIGHTS ONLY	

NOTES

400 Surface Rights Reservation along the shores of all lakes & rivers

DATE OF ISSUE
NOV - 5 1981
Ministry of Natural Resources
TORONTO

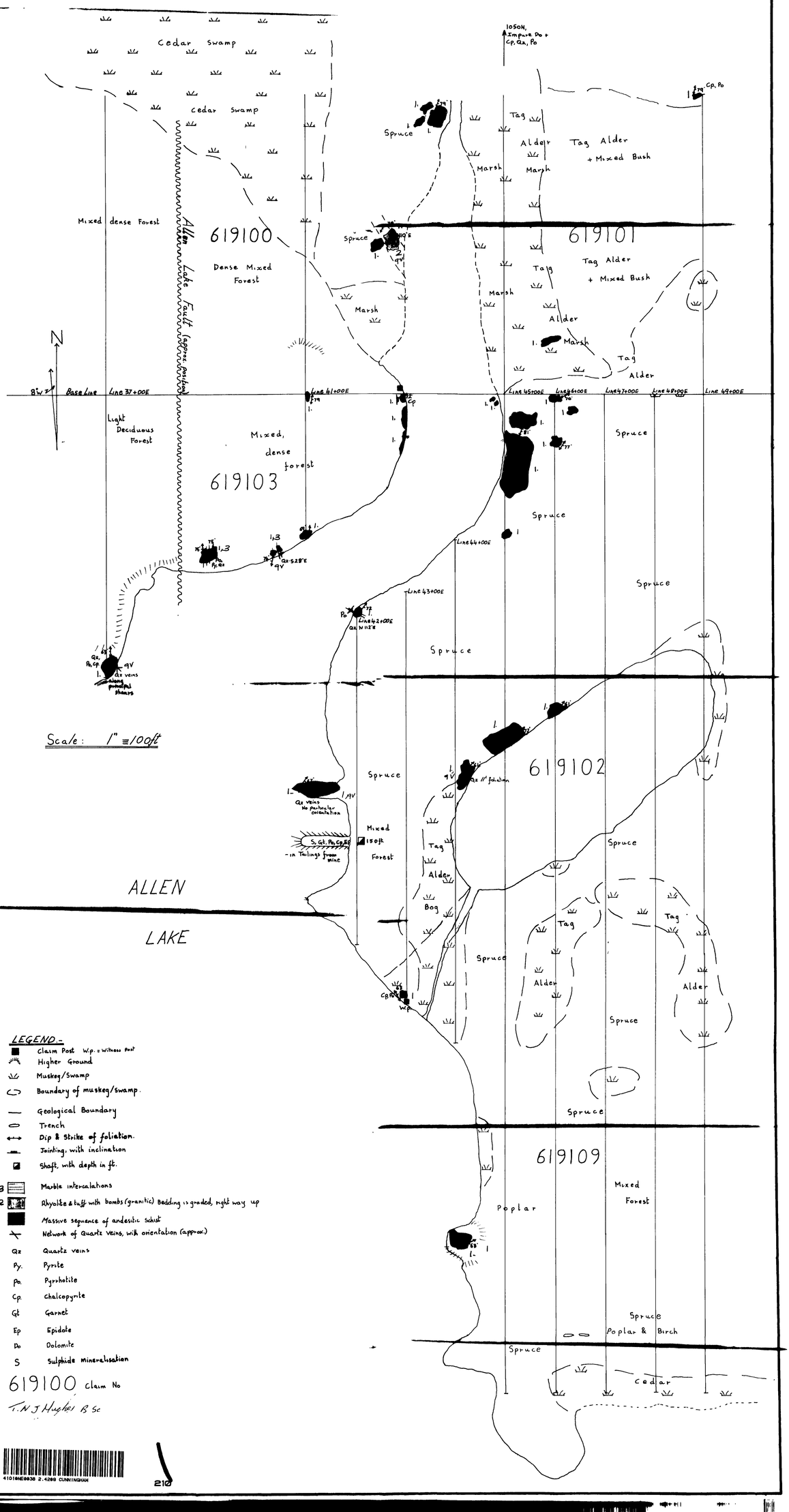
24209

PLAN NO.- M.744

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

200

Geology of Mine Shaft Area.



LEGEND:-

- Claim Post W.p. = witness post
- Higher Ground
- Muskeg/Swamp
- Boundary of muskeg/swamp.
- Geological Boundary
- Trench
- Dip & Strike of foliation.
- Jointing, with inclination
- Shaft, with depth in ft.
- 3 Marble intercalations
- 2 Rhyolite & tuff with bombs (granitic) Bedding is graded, right way up
- 1 Massive sequence of andesitic schist
- Network of Quartz veins, with orientation (approx.)
- Qz Quartz veins
- Py. Pyrite
- Po Pyrrhotite
- Cp. Chalcopyrite
- Gt Garnet
- Ep Epidote
- Do Dolomite
- S Sulphide mineralisation

619100 Claim No

T.N.J Hughes B.Sc

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RANSOM LAKE

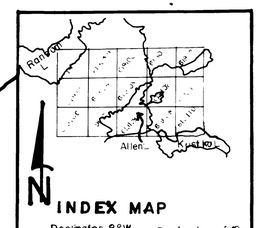
ALLEN LAKE

KOSTKA LAKE

619093 619099 619105 619104 619103 619107 619108 619102 619111 619110 619109

14000N 12000N 10000N 8000N 6000N 4000N 2000N Baseline 200S 400S 600S 800S 1000S 1200S 1400S 1600S 1800S 2000S 2200S 2400S 2600S

L0E L4E L8E L12E L16E L20E L24E L29E L33E L37E L41E L42E L43E L44E L45E L46E L47E L48E L49E L50E L51E L52E L53E L57E L60E L64E



INDEX MAP

Declination 8°W Scale 1 inch = 1/2 mi

LEGEND

Magnetometer: McPHAR G.P. 70

263 Magnetic values in gammas base: 59000

59200 Magnetic contours

Magnetic low

500 gammas intervals

100 gammas intervals

Claim post

WP Witness post

Unlocated post

150' Mine shaft

Base control stations

MAGNETOMETER SURVEY

- RANSOM LAKE AREA -

2 of 2

- CUNNINGHAM TWP. -

T.M.J. Hughes B.Sc.

INGAMAR EXPLORATIONS LIMITED

PROJECT 81-27

DATE: JULY/81 | DRAWN BY: JSALO

SCALE: 1 in. = 200 ft

0 200 400 600 ft


RANSOM LAKE
ALLEN LAKE
KOSTKA LAKE
LINE 00E
1400N
1200N
1000N
800N
600N
400N
200N
200S
400S
600S
800S
1000S
1200S
1400S
1600S
1800S
2000S
2200S
2400S
230
LINE 00E
LINE 4100E
INDEX MAP
Declination 8°W
Scale 1in = 1/2mi
AllenL
LEGEND
1" = 20%
Survey Station
Cutler, MAINE
17.8 k Hz.
INPHASE & QUAD
PROFILE MAP
- RANSOM LAKE AREA -
T N J Hughes B.Sc
- CUNNINGHAM TWP. -
INGAMAR
EXPLORATIONS
LIMITED
PROJECT 81-27
DATE: OCT '81
DRAWN BY: J SALO
SCALE: 1in. = 200 ft
0
200
400
600

RANSOM LAKE

Baseline

619098 619099 619100 619101 619112

619105 619104 619102 619111

A B C D

619103

619106 619107 619108 619109 619110

ALLEN LAKE

KOSTKA LAKE

L4E L8E L12E L16E L20E L24E L29E L33E L37E L41E L42E L43E L44E L45E L46E L47E L48E L49E L50E L51E L52E L53E L57E L60E L64E

INDEX MAP

Declination 8°W Scale: 1in = 1/2mi

Rayon L. Allen L. Kostka L.

LEGEND

2.4209

Geonics E.M.16

10/10 VLF-EM Fraser filter value

Contour intervals (10%)

Claim post

W.P. Witness post

Unlocated post

Mine shaft

Survey Station

Cutler, MAINE

17.8 kHz.

FRASER PLOT MAP

- RANSOM LAKE AREA -

- CUNNINGHAM TWP. -

T.N.S. Hughes B.Sc.

INGAMAR EXPLORATIONS LIMITED

PROJECT 81-27

DATE JULY/81 | DRAWN BY: JSALO

SCALE: 1in = 200ft

0 200 400 600m.

240