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A GEOPHYSICAL REPORT ON
A MAGNETOMETER SURVEY 82E/2E
MOE CLAIM GROUP
GRAND FORKS, B.C. (49°10'N, 118°35'W)
-for-
THE GRANBY MINING COMPANY LIMITED
August 19 to September 4, 1970
-by-
J. B. Prendergast, M.A., P.Eng.

REPORT ON

A MAGNETOMETER SURVEY

OVER

MOE CLAIM GROUP

FOR

THE GRANBY MINING COMPANY LIMITED

BY

KENTING EARTH SCIENCES

CALGARY, ALBERTA

DECEMBER 1970

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INTRODUCTION

A Magnetometer Survey was carried out over the Moe Claim Group for the Granby Mining Company Limited in the Grand Forks Area of British Columbia between August 19th and September 4th, 1970. The purpose of the survey was to interpret the geology, if possible, and to give some further means of evaluating geophysical work previously carried out on these claims.

The survey appears to define quite well a more magnetic geological unit north of the road passing through the south quarter of the property.

Description, Location and Access

The magnetometer work was run over a grid previously established for Induced Polarization surveys carried out by Huntec Limited in past years. The claims covered by the survey include Moe No. 1-6 inclusive, 9, 10, 13, 15, 17, 22, 23 and 25 fraction, and Crown Grant Bellflower L3151.

The claims are located some 11 miles NNW of Grand Forks, B.C., and may be reached by means of a secondary road which goes north from Provincial Highway No. 3, just east of the crossing of Boundary Creek, thence proceeding generally in a northeast direction for about $4\frac{1}{2}$ miles to arrive at the southernmost corner of the claim group.

Topography and Vegetation

The claims are located on the southeast slope of Mount Pelly, which rises some 1200 to 1500 feet above the access road. The topography is not extreme and did not con-

stitute a problem of access.

Vegetation consists of the usual coniferous growth, with underbrush conditions varying from very thick to the north to sparse in the south.

DESCRIPTION OF FIELD WORK

The survey was carried out using a Sharpe MF-1 Fluxgate Magnetometer with a readability of 10 gammas on the low-range scale, but a repeatability of no better than 50 gammas under normal survey conditions.

The survey was carried out by tieing in the readings along the lines to the base stations situated on the road across the property. At one stage in the survey, the field operators felt that the instrument they were using was not operating consistently from check readings at the base stations. Consequently, a second instrument was sent in for the purpose of checking some data. Many of these checks did not coincide very closely in absolute magnetic values; however, the magnetic profiles were, in the main, coincidental. On reviewing the results in the Calgary Office, it was decided that the first set of data would be used since this was as consistent as any combination of various data that were obtained. It is strongly suspected that there may have been some magnetic storm activity during the course of the survey, as both magnetometers calibrated well and operated properly in Calgary after the completion of the survey.

CALCULATION OF RESULTS

By tieing the survey points to the base stations, a control over diurnal variations in the earth's magnetic field may be obtained. Assumptions are made that these variations are linear between tie-in times; however, it is known that this is not, in fact, the case. For most mineral surveys the assumption of linearity does not seriously detract from the calibre of the data. For a more accurate correction of magnetic data, a continuously recording magnetic base station must be used.

With the diurnal corrections applied as indicated above, the data can then be corrected to the level of the base stations, which are normally arbitrary figures. This arbitrary level is selected so that the lower range of the fluxgate magnetometer may be used as much as possible since this range has a better readability.

Although some difficulty was encountered in following the lines of the old I.P. surveys, a map has been prepared showing values of magnetic readings at those stations where such values exist. Contours of magnetic intensity have been made at intervals of 250 gammas. This interval is broad; however, considering the comparison of the two sets of data and as well, the clear possibility of there having been magnetic storm activity, we did not feel that the data justified contouring at a lesser interval.

GEOLOGY

Government publications and maps indicate that the area surrounding the claims is, in general, underlain by rocks of the Upper Paleozoic Anarchist group consisting of greenstones, greywackes, limestones, and paragneiss (Reference Map 6 - 1957, Kettle River Sheet). This reference also indicates an area of Cretaceous intrusion north of Jewel Lake and northwest of the Moe Claim Group. Several areas have been shown near the claim group as underlain by the Phoenix volcanic group consisting mainly of andesites and trachytes.

More recent mapping, as indicated on Map 10 - 1967 to accompany Geological Paper 6742 by J.W.H. Monger, shows more detailed geological information in the specific area of the claims. The claim group is shown to be underlain by rocks generally classified as Jurassic to late Paleozoic and including limestone, chert, phyllite, schist, sandstone, conglomerates, greenstones, amphibolite and serpentinite. An area of Cretaceous intrusion to the southwest of the claim group has been shown, and as well, areas of Eocene intrusion southeast and northeast of the claim group.

It is assumed that the property was not thoroughly investigated by the government; therefore their geological assessment may be somewhat inconclusive.

A 1966 map, prepared by the Granby Mining Company Limited, indicates that several holes have been drilled on the Moe Claims in the area of the main magnetic feature. There had been airborne and surface magnetometer work done previously over this claim group. In a personal communication with Mr. Paxton of Granby Mines, the writer was in-

formed that the holes in question yielded some magnetic material but not, in the estimation of Granby Mines' engineers, sufficient to explain the large magnetic feature. In fact, a slightly magnetic basalt was observed in the drill core. A geological map of the Moe Grid, dated July 1970, prepared by Messrs. Paxton and Gemmell of the Granby Mining Company Limited, has been made available to the writer for the purpose of this report. This map indicates that the magnetic anomaly overlies an area approximately corresponding to the alteration zone north of the road through the claim group. This observation, coupled with the apparent lack of sufficient magnetite in drill holes Moe 1, 2 and 6 to explain the magnetic feature, suggests to the writer that the cause of the magnetic anomaly is related to a contact metamorphic effect along the contact related to the granodiorite intrusive lying just south of the road. It is in this zone of alteration that one might expect to find a promising area for economic mineralization and in fact, some slight degree of copper mineralization has been observed within the zone, again according to the 1970 geological map.

DISCUSSION OF RESULTS

The results of the magnetic survey, when contoured, show a clearly defined area of higher magnetic intensity in the central portion of the survey area. The magnetic intensity reaches in excess of 6,000 gammas above background, with an average approximately 1,000 to 1,500 gammas over the background values. It is noted this zone of higher magnetic intensity was previously detected along Lines 13+33 East, 16+66 East, 20 East, 23+33 East, 26+66 East and 30+00 East. The results of drilling Moe No. 1, 6 and 2 should give an indication of the cause of the anomaly. In view of the government geological findings in the area, one might suspect that the anomaly could be due to either Cretaceous or Eocene intrusive activity or a basic volcanic phase of the Phoenix group.

SUMMARY AND CONCLUSIONS

A Magnetometer Survey was carried out by the Kenting Earth Sciences Division over a portion of the Moe Claim Group in the Phoenix Area of British Columbia. Results of this survey have been presented as a contoured map showing variations in magnetic intensity and the results of an Induced Polarization Survey carried out previously. The contours clearly express an area of higher magnetic intensity whose cause may be postulated as being due to contact metamorphic phenomena related to the intrusion of the nearby granodiorite body through the volcanic complex. This observation is borne out by the zone of alteration within the basalt near the contact with the granodiorite and also some evidence of skarn closer to the granodiorite contact. Skarn-type alteration often is characterized by a higher content of magnetite.

Drilling carried out by the Granby Mining Company Limited in the years 1961 to 1967, and in particular Moe No. 1, 2 and 6, have intercepted the rocks underlying the magnetic anomaly. The Granby geological staff do not feel there is sufficient magnetite disclosed in the cores from these holes to account for the magnetic anomaly; however, this may be explained by the possibility that the holes did not get near enough in depth to the granodiorite contact and may not have reached the skarn or altered zone.

There does not appear to be any particular relation of economic significance between the induced polarization results and the magnetic contours; in fact, the magnetic results suggest that some of the faults predicted from the previous induced polarization work are not truly present and that chargeability anomalies such as that on Line 26+66 East, near Station 30 North, are due not to faulting, but to a change in the alteration pattern.

RECOMMENDATIONS

It would appear that sufficient work has been done geophysically to help interpret the geology of this portion of the Moe Claim Group. The writer finds nothing disclosed by the most recent magnetometer survey that would suggest any areas of possible economic interest to be further explored. Previous induced polarization work does not seem to be related to the observed copper mineralization in any predictable fashion. Moe No. 6 drill hole was presumably drilled to check the best part of the Zone 1 anomaly as found and reported on in 1966 by Huntec Limited. It is assumed that if anything of interest economically had been found in the course of drilling this hole, further drilling would have been done in this area.

Considering the above comments, no recommendations for further work are included in this report.

Respectfully submitted,

KENTING EARTH SCIENCES
Western Division

Expiry Date: May 28, 1971

J. B. Prendergast, M.A., P.Eng.

ASSESSMENT CREDIT DATA

CLAIMS SURVEYED

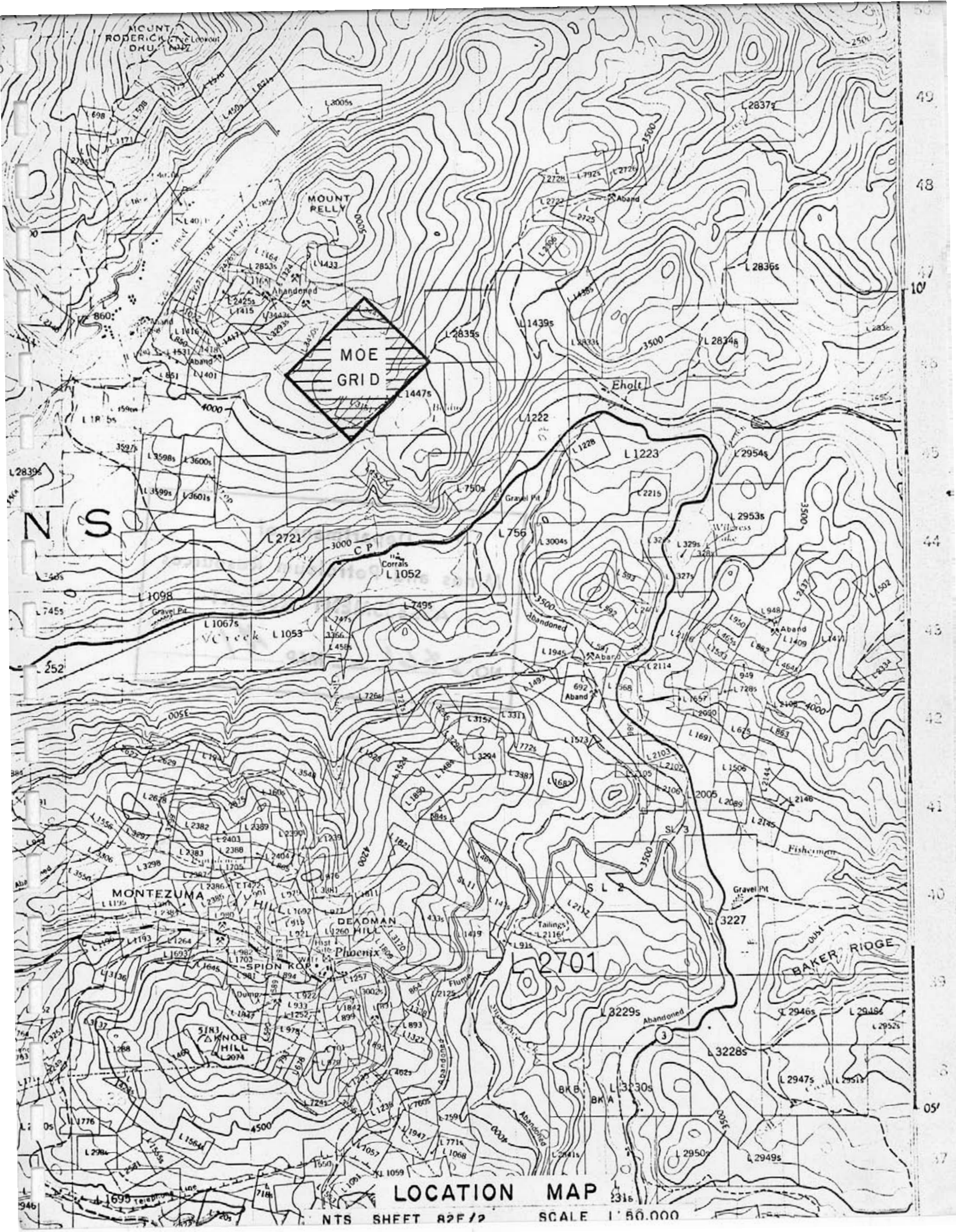
Moe 1-6 inclusive
9, 10, 13, 15, 17, 22, 23, 25 Fraction
C.G. Bellflower L3151

MILEAGE: Magnetometer Survey - 11.85 miles

PERSONNEL:

The following personnel were employed on the survey:-

Name	Position		Rate/Day	Charges
K. Schulte	Interpreter	Sept. 9, 1970) Nov. 5 & 13/70)	$120.00	$360.00
J.B.Prendergast	Geophysicist	Dec. 22 & 23/70	$175.00	$350.00
V. Lambert	Draftsman	Nov. 16 & 17/70	$ 75.00	$150.00
L. DeWitt	Typist	Dec. 30, 1970	$ 25.00	$ 25.00
		TOTAL		$885.00



LOCATION MAP

NTS SHEET 82E/2 SCALE 1:50,000

INDUCED POLARIZATION SURVEY

GRANBY MINING COMPANY LIMITED

GREENWOOD — B. C.

LOCATION MAP

SCALE : 1 INCH = 1 MILE.

Expiry Date: May 28, 1971

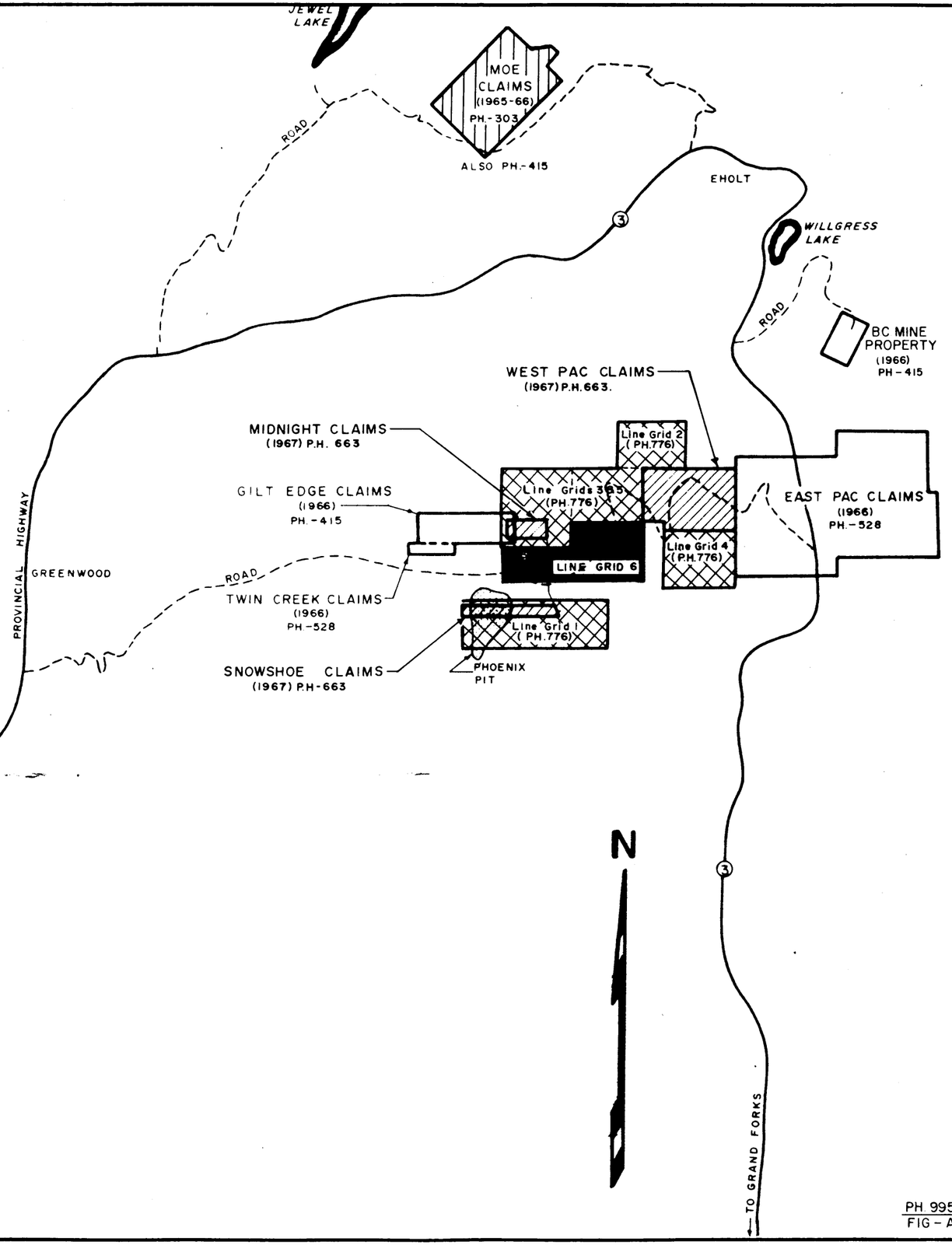
To accompany report by Andrew R. Dodds

A R Dodds B.Sc., Geophysicist.

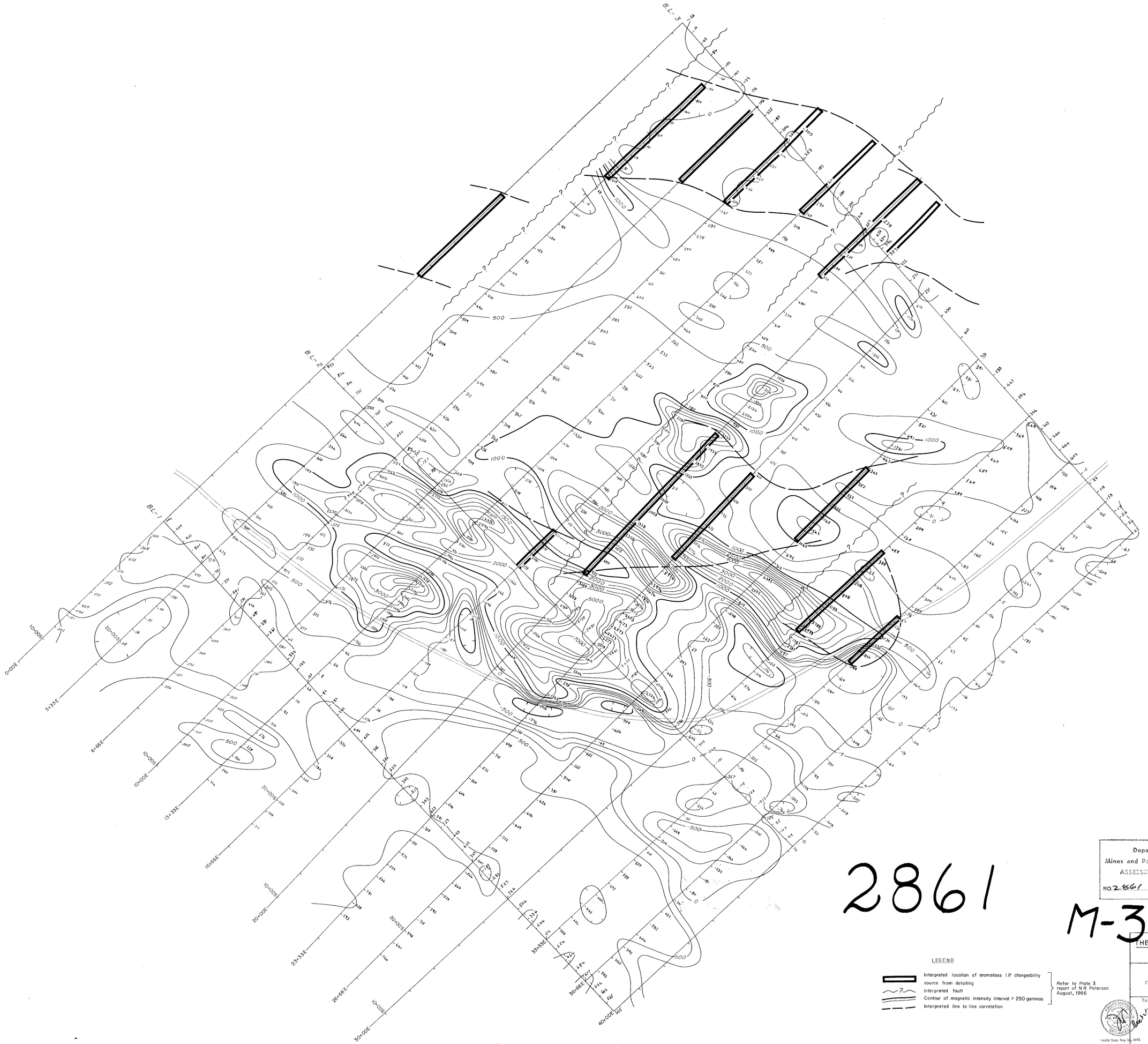
HUNTEC DIVISION, Calgary, Canada — July, 1969

NOTE.

- Claims Covered in PH-663. 1967 I.P. Survey Report
- Claims Covered in PH-776. 1968 I.P. Survey Report.
- Claims Covered in PH.-995. 1969 I. P. Survey Report.
- Claims Covered in PH-303, 415 1965-66 I.P. Survey Report



PH 995
FIG — A



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M-3

LEGEND

- Interpreted location of anomalous I.P. chargeability
- source from detailing
- Interpreted fault
- Contour of magnetic intensity interval = 250 gammas
- Interpreted line to line correlation

} Refer to Plate 3 report of N.R. Paterson August, 1966

THE GRANBY MINING COMPANY LIMITED

MOE CLAIM GROUP, GRAND FORKS, B.C.

MAGNETOMETER SURVEY

CONTOURS OF VERTICAL MAGNETIC INTENSITY

To accompany report by

J.B. Prendergast, M.A., P.Eng

KENTING EXPLORATION SERVICES LIMITED
Earth Sciences Division
CALGARY CANADA

SCALE: 1"=200'	DRAWN: V.L.	DATE: Sept, 1970
JOB No.: PC 1227		DWG No.: 1227 F