

225

REPORT  
on the  
MAGNETOMETER SURVEY  
of the  
NEW DELHI MINES LIMITED  
near  
MERRITT, B. C.

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September 24, 1958.

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Vancouver 1, B.C.

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REPORT  
on the  
MAGNETOMETER SURVEY  
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INTRODUCTION

This report describes the procedure and results of a magnetometer survey completed on mineral claims held by the New Delhi Mines Limited, at Merritt, B.C.

The magnetometer survey was part of a planned exploration program aimed at finding zones of copper mineralization.

In compliance with the Mineral Act, the report and magnetometer contour map qualify for submission for assessment credit on the claims enumerated in the text.

LOCATION AND PROPERTY

The property covered by the magnetometer survey consists of 30 claims and fractions situated 11 miles by road northwest of Merritt, B.C. The claims lie about one mile west of the Aberdeen road, 6 miles north of Lower Nicola.

The mineral claims held under option by New Delhi Mines, are the 22 Nicki, Mel and O'Leary claims.

Particulars of claims held under option

<u>Name</u>	<u>Record No.</u>	<u>Record Date</u>
Nicki No. 1	5300	December 17, 1957
Nicki No. 2	5301	December 17, 1957
Nicki No. 3	5302	December 17, 1957
Nicki No. 4	5303	December 17, 1957
Nicki No. 5	5304	December 17, 1957
Nicki No. 6	5305	December 17, 1957
Nicki No. 7	5306	December 17, 1957
Nicki No. 8	5307	December 17, 1957
Mel No. 1	5601	January 30, 1958
Mel No. 2	5602	January 30, 1958
Mel No. 3	5603	January 30, 1958
Mel No. 4	5604	January 30, 1958
Mel No. 5	5605	January 30, 1958
Mel No. 6	5606	January 30, 1958
Mel No. 7	5607	January 30, 1958
Mel No. 8	5608	January 30, 1958
O'Leary No. 1	5609	January 30, 1958
O'Leary No. 2	5610	January 30, 1958
O'Leary No. 3	5611	January 30, 1958
O'Leary No. 4	5612	January 30, 1958
O'Leary No. 5	5613	January 30, 1958
O'Leary No. 6	5614	January 30, 1958

A brunton and tape survey carried out in June, 1958, resulted in the staking for the company, of the Del fractional claims.

Particulars of claims held by location

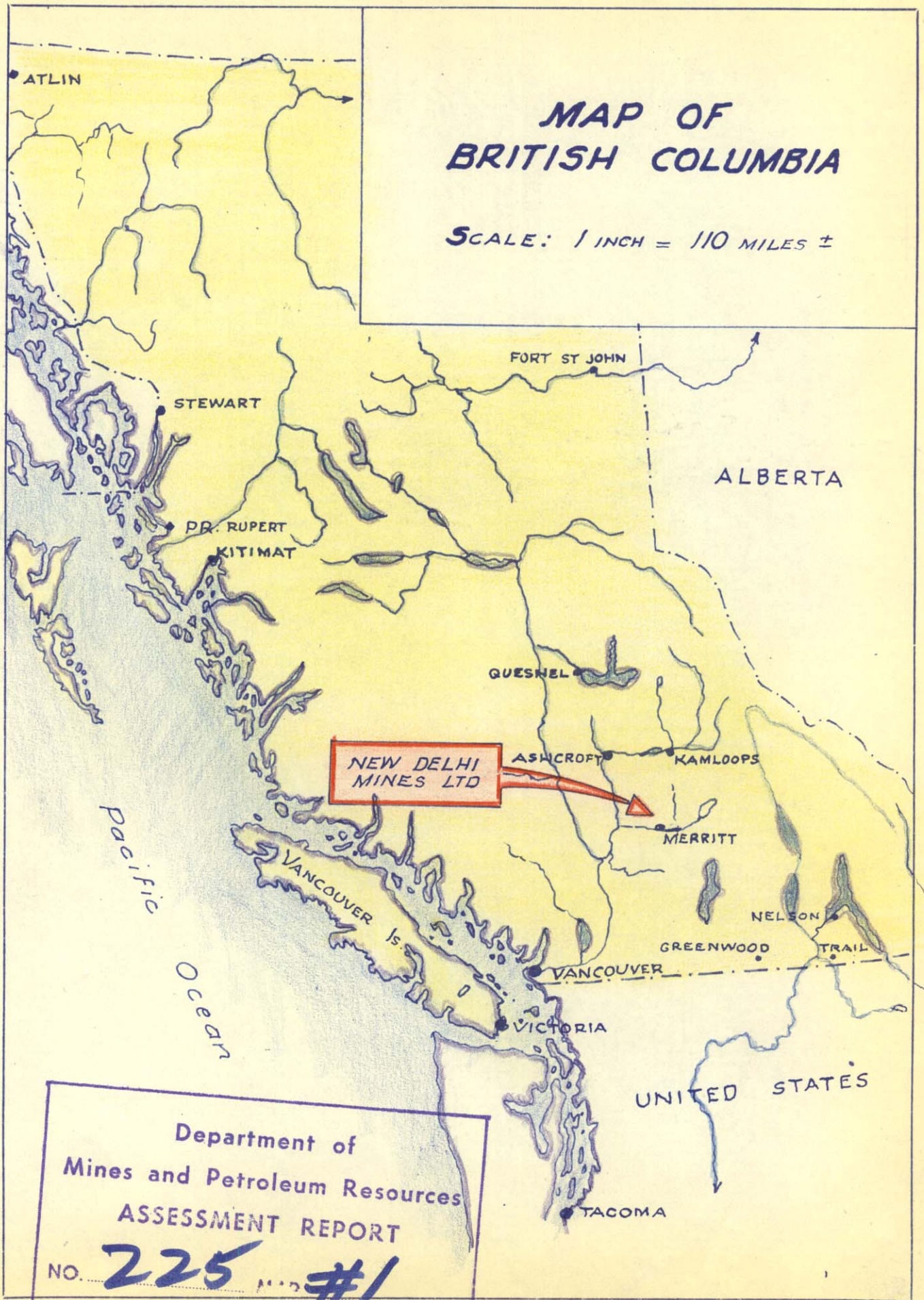
<u>Name</u>	<u>Record No.</u>	<u>Record Date</u>
Del No. 1 Fraction	9019	July 15, 1958
Del No. 2 Fraction	9020	July 15, 1958
Del No. 3 Fraction	9021	July 15, 1958
Del No. 4 Fraction	9022	July 15, 1958
Del No. 5 Fraction	9023	July 15, 1958
Del No. 6 Fraction	9024	July 15, 1958
Del No. 7 Fraction	9025	July 15, 1958
Del No. 8 Fraction	9026	July 15, 1958

All claims are within the Nicola Mining Division.

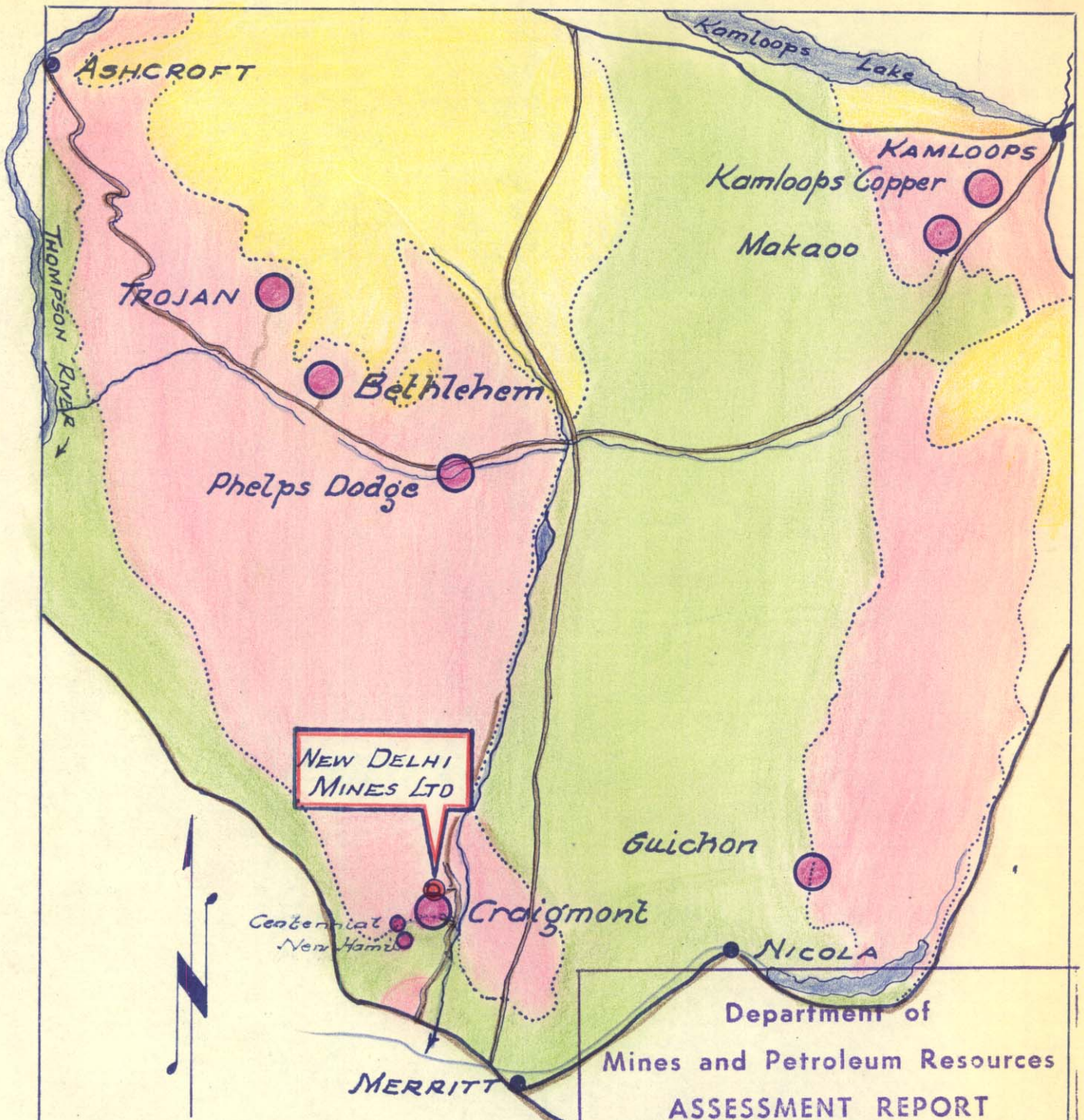
The property adjoins on the north the famous Craigmont mine where several million tons of 2% copper ore has been proved. As may be seen from the location sketch, the claims straddle Craigmont's northern "B" claims. The adjacent area has been very active this season with all ground taken up. Exploration was carried out on the east by Noranda, on the west by Rio Canadian and on the north by Kennco.






# MAP OF BRITISH COLUMBIA

SCALE: 1 INCH = 110 MILES ±



Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 225 #1



Mid Tertiary Volcanics	
Mesozoic Granite	
Triassic Volcs & Seds	
Paved Roads	
Improved Roads	

To ACCOMPANY REPORT BY  
F. J. HEMSWORTH, P. ENG.

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT

NO. **225** MAP **#2**  
**NEW DELHI MINES LTD**  
**DISTRICT MAP**  
**SHOWING PROPERTIES AND**  
**REGIONAL GEOLOGY**

SCALE: 1 INCH = 6 MILES ±

GENERAL DESCRIPTION OF THE AREA

The property lies on the west side of the upland valley of Guichon Creek, between elevations of 3,500 and 4,000 feet. The area is generally described as the southern part of the Highland Valley. The land rises gradually to the north and west and is timbered with pine, fir, and alder. The main topographical feature is the valley of Stumbles Creek where the water has cut deep gullies particularly at the south end. At the north end, near the headwaters of Stumbles Creek numerous tributary creeks have cut smaller valleys. Another feature is the rolling topography with north trending low ridges and valleys.

Most of the area is covered by a varying thickness of glacial drift, and rock outcrops are sparse. Some rock outcrops occur on low ridges on the west and northwest sections of the claims. The overburden is shallow on the rock ridges and reaches a probable depth of about 100 feet in the creek valley. Glacial overburden is the major hindrance to preliminary prospecting masking the true nature of the underlying bedrock. The geophysical survey was aimed at delimiting favorable zones for stripping and diamond drilling.



## FIELD PROCEDURE

### Survey of Grid

A main baseline was surveyed along the location line of the Mel mineral claims. This line was run on a N20°E bearing for 7,400 feet, and stations were established at 400-foot intervals and designated by letters from A to S. From each baseline station lines were cut at right angles as far as the property boundaries. Pickets were placed at 200-foot intervals along these side lines and numbered with crayon. An auxiliary baseline was run on the same bearing (N20°E) through the Nicki claims and additional lines were run to cover interstices between fractions and claim segments. All lines were surveyed with Brunton compass and chain.

### Instrument

Readings were taken at 100-foot intervals with a Sharp magnetometer, Model A2. This instrument is a precision magnetic field balance and measures changes in the vertical component of the earth's magnetic field. It has a sensitivity of 20.2 gammas per scale division and an intensity range from 0 to 15,000 gammas.

## Corrections

### (a) Diurnal

All readings were corrected for diurnal, or variations from time to time during the day. Since only one instrument was available for the job, a base station was set up near camp. One day was spent in taking readings every hour at this base station and a diurnal curve drawn from these readings. Diurnal corrections for readings taken on subsequent days were based on this curve.

### (b) Day to Day

A reading was taken at the base station each day before leaving for the field and each day after field work was completed. The variation between the base reading on any particular day and the original base reading (corrected for diurnal variations) was the day to day correction. The diurnal and day to day corrections were added to each field reading to arrive at the corrected magnetometer reading.

## Mapping

The results of the magnetometer survey are shown on the map contained in the pocket at the back of the report. The magnetometer readings are represented on this map by a series of contour lines indicating the magnetic intensity in gammas. The contour lines were drawn through readings of equal intensity at 100 gamma intervals on a working plan on which the readings were plotted. The map was colored in order to emphasize the distribution of readings and assist in the interpretation.

### GENERAL GEOLOGY RELATIVE TO MAGNETIC SUSCEPTIBILITY

The underlying rock on the New Delhi claims is quartz diorite of the Guichon Batholith of Lower Jurassic age.

The quartz diorite is a grey to dark grey, medium to coarse-grained massive rock composed of quartz, plagioclase and orthoclase feldspars, with accessory biotite, hornblende, and magnetite. The considerable amount of accessory magnetite results in relative high magnetometer readings.

The Guichon Batholith is about 40 miles long and 16 miles wide, and is elongated in a direction a little west of north, parallel to the general trend of the older rocks. The New Delhi ground is located near the southern periphery, adjoining the Craigmont mine on the north and about 20 miles south of the Highland Valley Bethlehem and Trojan copper deposits. The Bethlehem orebodies are huge, low-grade, disseminated deposits of copper that are likely to prove of great economic importance. The Bethlehem and Trojan mines occur in breccia zones in a younger granitic complex within the quartz diorite of the Guichon Batholith. These brecciated rocks containing the ore zones have been altered and chloritized and in places mineralized with bornite, chalcopyrite, chalcocite, specular hematite, molybdenite, tourmaline and copper carbonates.

Magnetometer survey results have been analysed at the Bethlehem Copper property. It was found that the Bethlehem orebodies are located in areas of relative low gamma readings, around the flanks of lows, or in a bulge of a relative low.

One theory is that in an area of mineralized quartz diorite there has been alteration of the accessory magnetite to hematite resulting in low magnetic readings. However, porphyry dykes and more acid types of quartz diorite will also give relative low readings. Consequently the readings must be interpreted in conjunction with known geological and topographical background.

The New Delhi claims adjoin the northerly claims of the Craigmont holdings. Craigmont owns over 150 claims and the ground includes the contact zone between the Guichon quartz diorite and the Nicola series of volcanics and sediments. South of this contact magnetometer surveys located a large magnetic anomaly. Diamond drilling has indicated an ore zone containing a possible 20,000,000 tons of 2% copper. The deposit is a contact metamorphic type of replacement in limey tuffs containing a high percentage of magnetite. This ore zone lies about 2 miles south of the New Delhi claims and is in a different geologic formation. Prior to the discovery of this zone, Craigmont had done considerable exploration on another type of deposit. North of the contact and about 1 mile south of New Delhi claims trenching had exposed a zone in the granitic rock carrying about 1% copper. Here strongly shattered quartz diorite had been silicified and mineralized with tourmaline, magnetite and chalcopyrite. This occurrence is associated with strong, north-striking, vertical-dipping, fault zones, sometimes called tourmaline veins. This structure passes under overburden but apparently continues north toward the New Delhi claims.

On the BE No. 1 claims, just north of the Wolly group, and about 2 miles N25°E from New Delhi, a similar shattered zone or tourmaline vein has been uncovered recently on the bank of a small creek. This showing has a magnetic north strike and is mineralized with tourmaline, chalcopyrite, magnetite and copper carbonates. Due to the presence of some magnetite these mineralized fault zones would give relative high magnetic readings.

### INTERPRETATION OF RESULTS

The main purpose of magnetic surveys is to present a generalized picture of the bed rock geology, and it is only seldom that anomalies as such are directly associated with ore. Nevertheless by means of a magnetic intensity map of an area, geologic conditions and formations bearing a relationship to possible ore locations may be traced.

In interpreting the magnetometer results of the New Delhi survey attention must be directed to areas of either:

Relative low magnetic intensity which might indicate favorable breccia zones similar to the ore deposits at Bethlehem and Trojan Mines or

Relative high magnetic intensity which might indicate mineralized shear zones, or tourmaline veins.

Creek valleys and natural ground depressions give relative low gamma readings. This is particularly noticeable in the deep valleys of Stumbles Creek and its tributaries. These low magnetic intensities are due partly to the compensating effect of the valley walls and partly to the greater depth of overburden.

Four areas have been outlined on the geophysical gamma contour plan and are lettered A, B, C, and D. These areas represent zones considered to be the most favorable for copper mineralization on the New Delhi claims. Zones A and B are magnetic lows while C and D are moderate highs.

Zone A is on the O'Leary No. 2 claim. It is a relative low of around 300 gammas. The ground is comparatively flat with a moderate rise to the west and consequently is not a topographic low. It could represent a more acid type of quartz diorite containing less accessory magnetite or possibly a breccia zone with inherent copper mineralization.

Zone B occurs in the southwest part of the Nicki No. 7 claim and is also a relative low. Actually it consists of two lows with medium readings between.

Zone C is on the Del No. 1 Fraction and is a moderate high of 2,000 gammas. As such it may represent a north striking fault zone or tourmaline vein carrying more magnetite than the surrounding quartz diorite.

Zone D is on the northern section of the Mel No. 3 mineral claim. It is also a moderate high of 2,000 gammas. Other medium highs occur in the same area and may have some similar significance.

RECOMMENDATIONS

Zones A and C should be stripped and trenched by bulldozer. These zones are handy to the tractor road and could be investigated at a minimum cost. If copper mineralization is uncovered in either of these areas, the other zones should be stripped and the best zones diamond drilled.

Before a large development program is undertaken a working arrangement should be made so that certain of the "B" claims may be explored jointly with the company ground.

CONCLUSIONS

The manner in which the New Delhi claims were located over prior staking resulted in a serious loss in continuity of gamma contours, and the prevalent hill and dale topography, combined to make this survey particularly difficult to interpret.

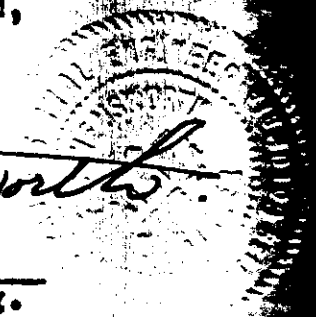
The effectiveness of the magnetometer survey can best be evaluated after the recommended development has been completed.

Respectfully submitted,



*F. J. Hemsworth*

F.J. Hemsworth, P. Eng.



Statement of Expenses on the Magnetometer  
Survey of the 30 claims owned by New Delhi  
Mines Limited, Merritt, B.C.

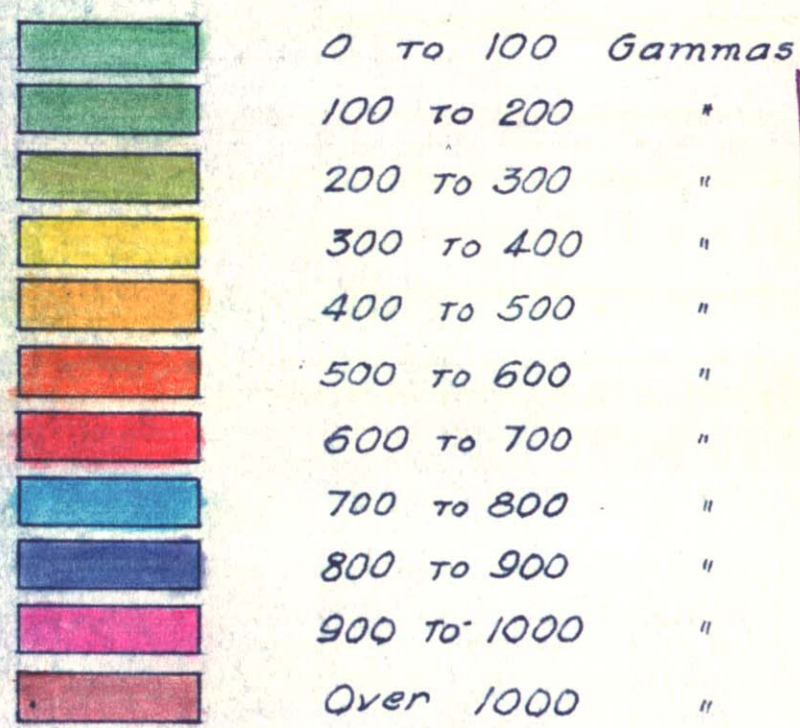
R.J. Young - Geological Engineering Student-July, August and 2/3 of September @\$450.00 per month plus holiday pay-----	\$1,262.00
B.J. Hemsworth - Helper-July and August-2 months @\$250.00 per month-----	500.00
F.J. Hemsworth - Professional Engineer-36 days @\$35.00 per day-----	<u>\$1,260.00</u>
Total	<u>\$3,022.00</u>

Drafting, Stenographic expenses and magnetometer  
rental in addition to the above.

Certified Correct

  
F.J. Hemsworth.





--- Road  
 \*\*\*\*\* Rock Outcrops

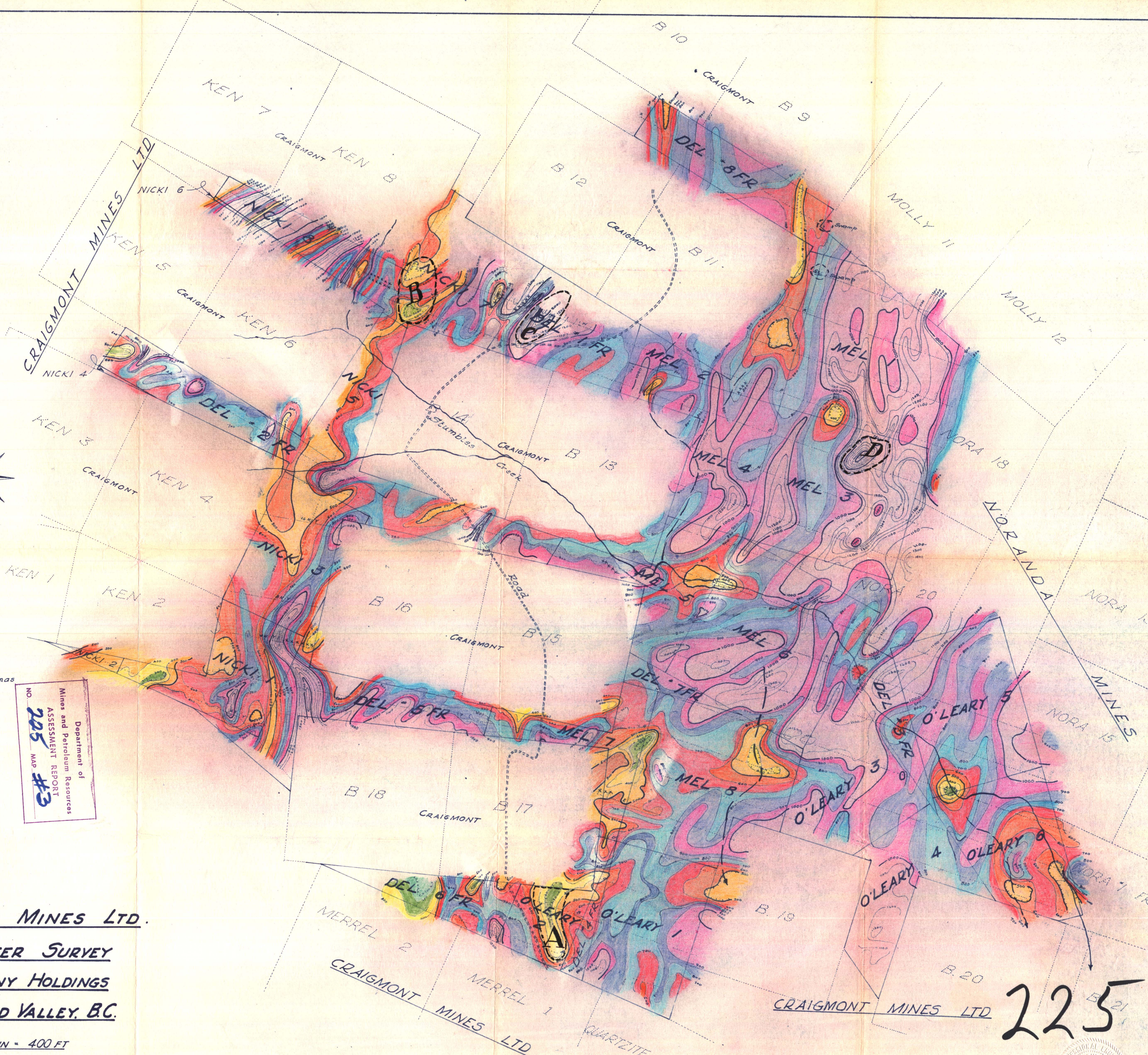
Department of  
 Mines and Petroleum Resources  
 ASSESSMENT REPORT  
 NO. 205  
 MAP #3

**NEW DELHI MINES LTD.**  
**MAGNETOMETER SURVEY**  
**ON COMPANY HOLDINGS**  
**AT HIGHLAND VALLEY, B.C.**

SCALE: 1 IN = 400 FT

SEPT 1958

F.J. HEMSWORTH, P. ENG.



225

F.J. Hemsworth

