

FINAL REPORT

PACIFIC NICKEL PROJECT

HOPE, B. C., CANADA, JULY - SEPTEMBER 1952

Newmont Exploration Limited

April 9, 1953

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BOX 366

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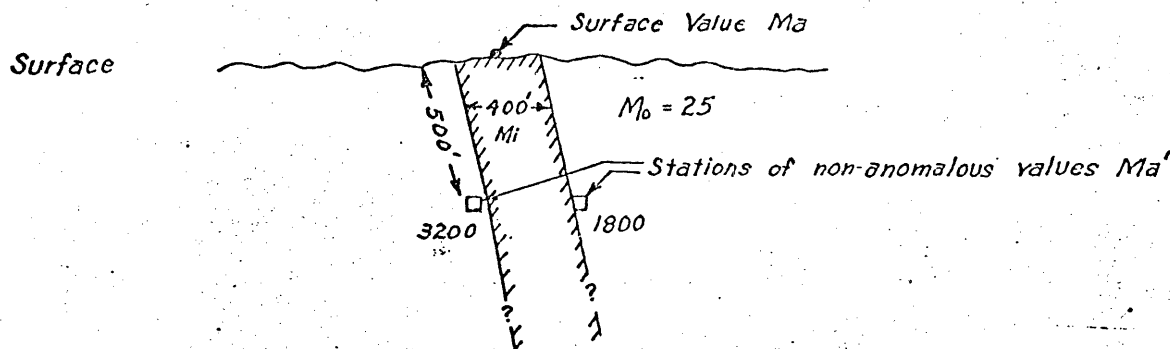
A report covering the surface pulse survey at Pacific Nickel was submitted by H. O. Seigel on October 15, 1952. The following report includes the information from the survey of the underground workings and presents some general suggestions regarding the extensions of the mineralized area.

NO. 1 ADIT PULSE SURVEY

The No. 1 Adit was pulsed with an equispaced 3 electrode array at 50, 100, 200, 400 and 800 foot spacings. The 400 foot spacing values are contoured on Figure 2 accompanying this report. Since 400 foot spacing measurements were not taken in many of the cross cuts, the contouring may be slightly inaccurate, although the inferences made by the shorter spacing crosscut measurements have been used as noted by the arrows shown on Figure 2.

A striking correlation is apparent between the anomalies delineated on the surface and underground as is shown by overlying Figure 2 on Figure 1. Calculations have been made to determine if the anomalous zone might continue to depth below the tunnel level. In these calculations it was assumed that the general elongated E-W mineralized zone approximated a steeply north dipping bed having a relatively high chargeability. The physical properties of the zone were taken from the surface measurements. It is argued if these properties do not change radically between the surface and the level of

the tunnel, the magnitude of the measured values in the tunnel should be diagnostic of the extent of the zone below the tunnel level.



Using an average observed surface value  $M_a = 60$  over the anomalous zone, the true chargeability  $M_i$  of the zone works out to be 95. This value is in agreement with some short spacing values taken in the adit. Computing the underground value which would be measured for these properties, assuming an extended two layer case as shown on the sketch and adjusting for electrical inagary, gives and  $M_a$  in the tunnel of 59 Vs/Vp units. This is very close to the observed average non-anomalous values in the adit where the 400 foot spacing values range from 50-90 units. The computed value for the case of a zone terminated below the adit level would be closer to 45 units or less. There is crude evidence then that the assumed tabular mineralized zone does continue perhaps 300-400 feet below the adit level.

#### CHINAMAN'S TUNNEL

The Chinaman's Tunnel was pulsed in the same manner as the No. 1 Adit. The 400 foot spacing values measured in the Chinaman's Tunnel shown in brackets on Figure 1 are in fair agreement with the surface values over the same area. Analysis of the tunnel profiles indicates that the high chargeability material ( $M = 80$  plus) encountered at the end of the tunnel comes close if not immediately to the walls at 2200'.

#### SOUTHERN XYZ ZONE

From the small amount of available pulse data there is a hint of an east-west trend in the high response zone shown here. There is reportedly a basic outcrop some 4000 feet west of this area

ANOMALY	PULSE INDICATION	SELF POTENTIAL AND RESISTIVITY CORROBORATION	DETAILED WORK	SURFACE EXPOSURES	PROBABLE SOURCE	INDICATED DEPTH BELOW SURFACE
C	Up to 76 on line E on 800' spacing	Resistivity as low as 1500 ohm meters on line E on 400' spacing. No self potential data.	No detail work	Hornblendic pyroxenite Some sulphide exposures.	Uncertain because of lack of detailed work.	Uncertain
D	Up to 106 on line En 200' spacing	Resistivity as low as 350 ohm meters on line En on 200' spacing. No self potential data	On lines En, 50', 100', 200', 400', 800'	Pyroxenite, hornblendic pyroxenite, some talc-serpentine alteration. Some disseminated, sulphides at surface, e.g. 1350' W on En	Separate sulphide bodies Line En opposite 1350' W, 1500' W and 1650' W <i>15 feet actual or from pt. on I12</i>	Less than 100', generally sulphides extend to at least 400' depth.
E	Up to 92 on lines Bs, 400' spacing	Resistivity as low as 400 ohm meters on line Bs. Self potential shows more than 700 millivolt on line Bs	On line An 50', 100', 200', 400', 800'. On line Bs, 200', 400', 800'.	Hornblendic pyroxenite	Separate sulphide bodies line An opposite 90' W and 140' E. Line Bs, approx. opposite 00	Some sulphides within 100' of surface generally. Sulphides at least to 400' depth.
F	Up to 118 on line Y, 100' spacing	Resistivity as low as 180 ohm meters on 100' spacing, line Y 140 and 700 m.v. self-potential sinks.	On line Y, 10', 25', 50', 100', 200', 400', 800'.	Mostly hornblendic pyroxenite. Some sulphides in surface exposures.	Separate sulphide bodies. line Y - 1550' S, 2100' S, and 2500' S	Some sulphides within 50' of surface. Would appear to extend to at least 400' depth steeply dipping.
G	Up to 84 on line X on 400' spacing	Resistivity down to 250 ohm meters at same place. No self potential data	No detailed work	Not mapped, but possibly in Metasediments alluvial cover	Unknown	Unknown

which is said to show sulfides. These facts would lead one to speculate on the possibility of the XYZ zone continuing westward under the schist.

#### MAIN ZONE

The E-W trend of the anomalous main zone is shown on Figure 1. The zone appears to be terminated abruptly to the west but this may only be local. Mineralized pyroxenite is reported to exist some distance further to the west.

The eastern end of the zone is by no means terminated. A large area of plus 50 units is shown by the contours on Figure 1. Inasmuch as this is reported to be an area of considerable cover, the bedrock response may actually be as high as 100 Vs/Vp units.

#### CONCLUSIONS AND RECOMMENDATIONS

(1) There is good correlation between the surface and underground expression of the localized highs along the E-W trend shown on Figures 1 and 2. It would appear that this mineralized zone continues downward some 300 or 400 feet below the tunnel level. For this reason it would be expected that the anomalous high just east and a little south of the east portal of the No. 1 Adit may also have some vertical extent.

(2) Although the pulse high at the end of the Chinaman's Tunnel and the associated high on the surface are not necessarily indicative of Nickel mineralization, it does suggest the possibility of mineralization lying north of the area covered by the survey to date. It is recommended then that if the pulse coverage of the general area is ever extended, the ground to the north be included in the program.

(3) The XYZ area contains an anomalous response indicative of commercial mineralization as cited by Seigel in his October report. The continuance of this area beneath the schist (?) to the west looks promising. It is recommended that further geophysical work be considered for this area.

(4) There is every possibility that the main mineralized belt continues to the west and particularly to the east. It is recommended that the pulse coverage be extended to the east and that some

consideration be given to the possible extension to the west.

ACKNOWLEDGMENTS

The 1952 pulse survey was conducted by Kenneth McGriffin. The original interpretation was performed by McGriffin and Seigel. The interpretation presented herein was carried out by A. A. Brant and R. J. Searls. Geologic data and the geophysical proposals presented above were suggested by A. A. Brant and K. McGriffin.

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