006691

WON PROPERTY - Minto, Y.T.

Induced Polarization Survey

M.G.Berretta August 11,76

Mauro G. Berretta, B.Sc., M.Sc.
CONSULTING GEOPHYSICIST

PHONE (604) 463-3787
21141 - 117TH AVE.
MAPLE RIDGE, B.C. CANADA

SUMMARY

An additional induced polarization survey on the WON property, Minto, Y.T., has outlined three anomalous zones of possible economic interest. Anomaly amplitudes indicate the presence of sulfide mineralization of up to 10% by volume, depending upon the degree of dissemination. A resistivity sounding technique was successfully used in determining overburden depths over areas of known cover.

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1. INTRODUCTION

During the period from July 10 to July 20, 1976, an induced polarization survey was carried out on the WON property, Yukon Territory, on behalf of Kerr Addison Mines Ltd. The field work was carried out by Douglas MacQuarrie, geologist/geophysicist, under the direction of Mauro G. Berretta, geophysicist.

The property is located at an elevation of about 2500', some 30 miles north-west of Minto, Y.T., and is accessible via helicopter from Minto. (Fig. 1).

A 450 watt frequency domain system was employed, using a dipole dipole array with a=400', n=2, and a frequency span of 0.3-10Hz. This work is an extension of a previous i.p. survey (Sept. 1975), and consists of approximately 14 miles of data taken on 200' stations and on lines 800' apart. (Fig. 2).Moreover, resistivity soundings were performed over the locations of diamond drill holes #1 and #5, in order to test a method of estimating overburden depths using resistivity data.

2. GEOLOGY

The property is underlain primarily by volcanics that may in part overlie intrusive rock. As a result,the volcanics have been metamorphosed, with chlorite and pyrite as the major alteration products. The volcanics also display varying degrees of

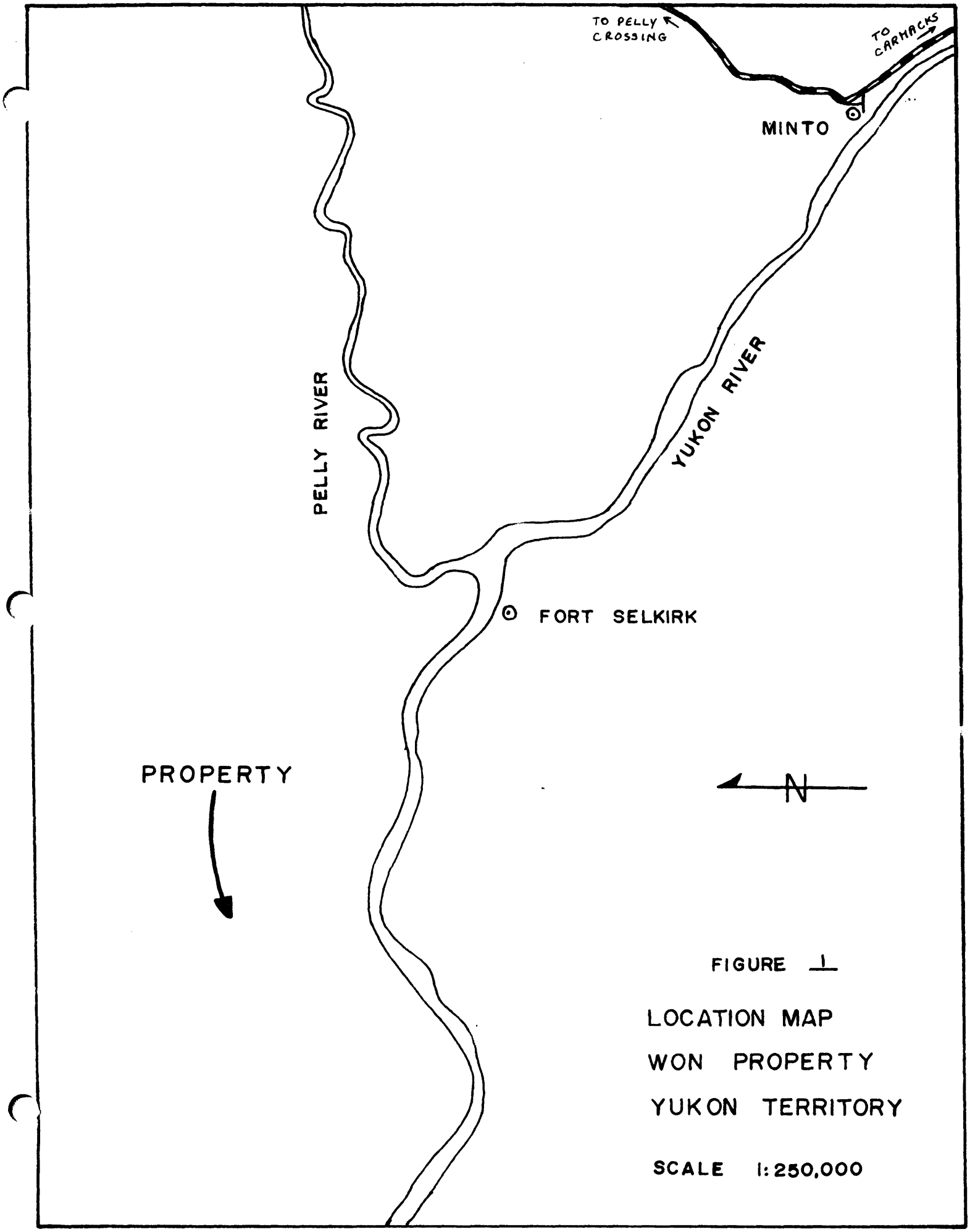

FIGURE 1

LOCATION MAP
WON PROPERTY
YUKON TERRITORY

SCALE 1:250,000

schistosity. Several diamond drill holes have revealed the presence of sulfides (mostly pyrite and pyrrhotite) in both volcanic and intrusive rock, with minor copper occurring in the latter.

3. RESISTIVITY SOUNDING DATA AND INTERPRETATION

The results of the two resistivity soundings are shown in Figure 6. Over DDH #1, the cumulative resistivity plot outlines the presence of three distinct resistivity layers. The first, due to overburden, is about 50' thick. The second is characterized by high resistivity, and exists to a depth of about 175' below the surface. Beneath this is a region of very low resistivity which defines a third layer of undetermined thickness. It is thought that these represent volcanic rock which, below about 175' is more conductive due to fracturing, or increased schistosity and/or chlorite content. Over DDH #5, the cumulative resistivity data defines two separate layers. The top one, due to overburden is approximately 200' thick. Below this is a high resistivity unit which probably represents either intrusive rock or a somewhat competent volcanic. In conclusion, it appears that this technique was quite successful in estimating overburden depths over DDH #1 and #5, which drill data revealed to be 52' and 165' respectively.

4. INDUCED POLARIZATION RESULTS AND INTERPRETATION

RESISTIVITY

The resistivity data is shown in Figure 3. The most striking feature is a zone of resistivity high (in excess of 3000 ohm-m) on and south of baseline 1, which is very consistent with previous work. This could be caused by a dike, although most likely it is due to the presence of extensive permafrost. In the north end of the survey area is a belt of high resistivities (in excess of 1600 ohm-m) which is representative probably of an intrusive rock or a competent volcanic. Between these two regions lies an east-west belt of very low resistivities (less than 100 ohm-m) which are thought to be due to highly fractured and/or altered volcanics. Immediately south of baseline 2, on line 00, is a small resistivity high of about 1200 ohm-m. DDH #5 in this very area has revealed the presence of intrusive rock. Thus the resistivity feature may indicate the presence of a small plug or possibly a window in the overlying volcanics. The south-east part of the survey area displays higher resistivities (up to 1000 ohm-m) which may be caused by intrusive rock or by a gradually decreasing depth of overburden to the south.

PERCENT FREQUENCY EFFECT

The pfe data is shown in Figure 4. The present work has

outlined the presence of two, possibly three anomalies of potential economic interest. The first is on lines 16W to 16E (1) from about 10N to 30N and has an amplitude of about 45%. An interesting aspect of this feature is its association with a very pronounced resistivity low. The second anomaly, found by the previous work, has been closed by the present survey, and is located at about 20S on lines 00, 8W and 16W. Its amplitude (2) is about 40%. An additional interesting aspect of these two features is their proximity to small magnetic anomalies which appear to be separate from the more extensive magnetic effects of the volcanics to the south. The third anomaly, and possibly the most interesting, is found on lines 16E, 24E and 32E, at (3) about 32S. Although its amplitude is less than that of other anomalies (about 20%), it appears to be somewhat distinct from the highly anomalous region to the west that may well be due to pyritic volcanics. Moreover, this anomaly is in relatively close proximity to the location of DDH#5, which has encountered minor copper in intrusive rock. Additional data was obtained over this region using 'n' values of 1 and 3. The results are shown in Figure 5. All electrode separations give remarkably similar profile shapes, with only a slight shift to the south for n=1. This, along with the consistent resistivities obtained with all three n values, would rule out the possibility of this anomaly being due to an overburden/bedrock effect.

It is thought that the above three anomalies are caused by

sulfide mineralization in the range of 3% to 10% by volume, with the degree of dissemination being the major factor in determining the above percentage.

5. RECOMMENDATIONS

It is recommended that the anomalous regions discussed in the previous section be explored further for the presence of economic copper-molybdenum mineralization. The exact location of drill holes ought to be determined in light of all available data, i.p., magnetic and drilling.

Respectfully submitted,

Mauro G. Berretta
Geophysicist

Maple Ridge, B.C.
August 11, 1976

40W 32W 24W 16W 8W 00 8E 16 E 24 E 32 E

40N
32N
24N
16N
8N
00
8S
16S
24S
32S
40S
48S
56S
64S
72 S
80S
88S
96 S

B1

B2

creek

lake

N_T

FIGURE 2

I.P. GRID & STATION MAP

WON CLAIMS GROUP - MINTO Y.T.

KERR ADDISON . MINE LTD.

dipole dipole
a = 400'
n = 2
0.3 - 10 HZ

SCALE 1" = 400'

CONTOUR INTERVAL

MAURO G. BERRETTA

JULY 1976

inches
0 1 2
0 1 2 3 4 5
centimetres

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

YUKON GEOLOGICAL SURVEY

40W 32W 24W 16W 8W 00 8E 16 E 24E 32 E

40 N
32 N
24 N
16N
8N
00
8S
16 S
24 S
32 S
40 S
48 S
56 S
64 S
72 S
80 S
88 S
96 S

L1
L2

creek
lake

N$_T$

FIGURE 3

RESISTIVITY

WON CLAIMS GROUP - MINTO Y.T.

KERR ADDISON . MINE LTD.

dipole dipole
a = 400'
n = 2
0.3 - 10 HZ

SCALE 1" = 400'

CONTOUR INTERVAL 200 Ωm

MAURO G. BERRETTA.

JULY 1976

40W 32W 24W 16W 8W 00 8E 16 E 24 E 32 E

40 N
32 N
24 N
16 N
8 N
00
8 S
16 S
24 S
32 S
40 S
48 S
56 S
64 S
72 S
80 S
88 S
96 S

L1

L2

creek

lake

N_T

FIGURE 4

PFE

WON CLAIMS GROUP - MINTO Y.T.

KERR ADDISON . MINE LTD.

dipole dipole
a = 400'
n = 2
0.3 - 10 HZ

SCALE 1" = 400'

CONTOUR INTERVAL 5 %

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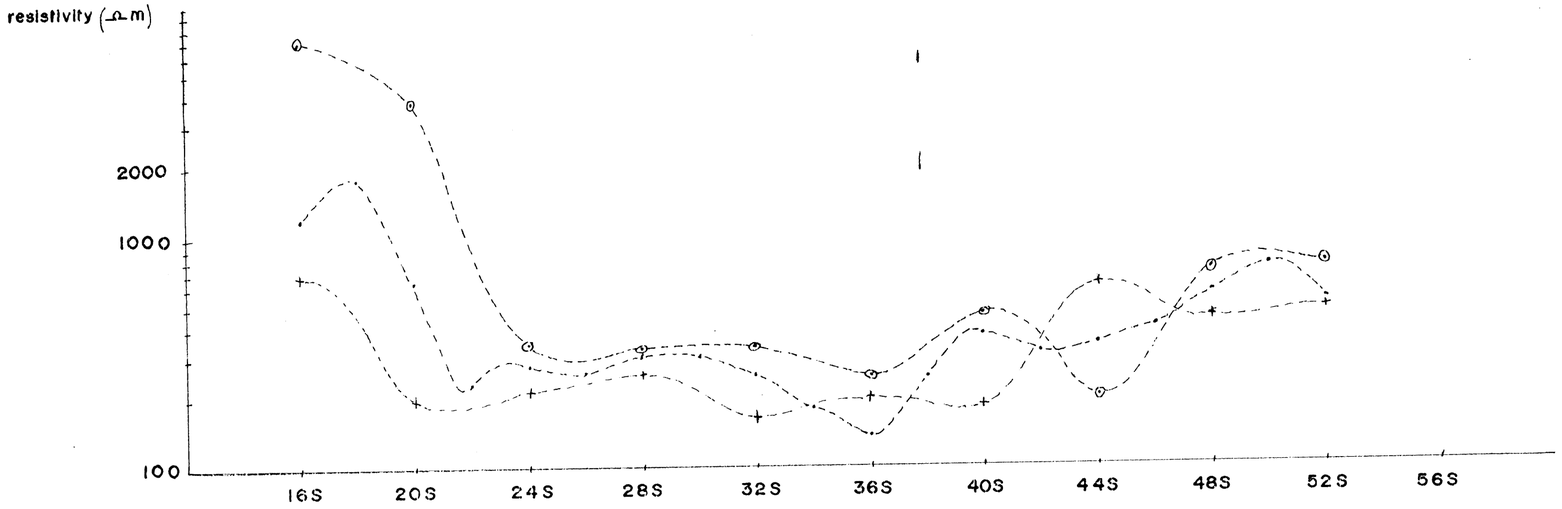


n = 1

n = 2

n = 3

FIGURE 5

IP DETAIL LINE 24E

WON CLAIMS - MINTO Y.T.

KERR ADDISON MINES LTD.

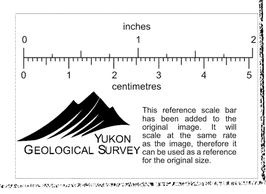
dipole dipole

a = 400'

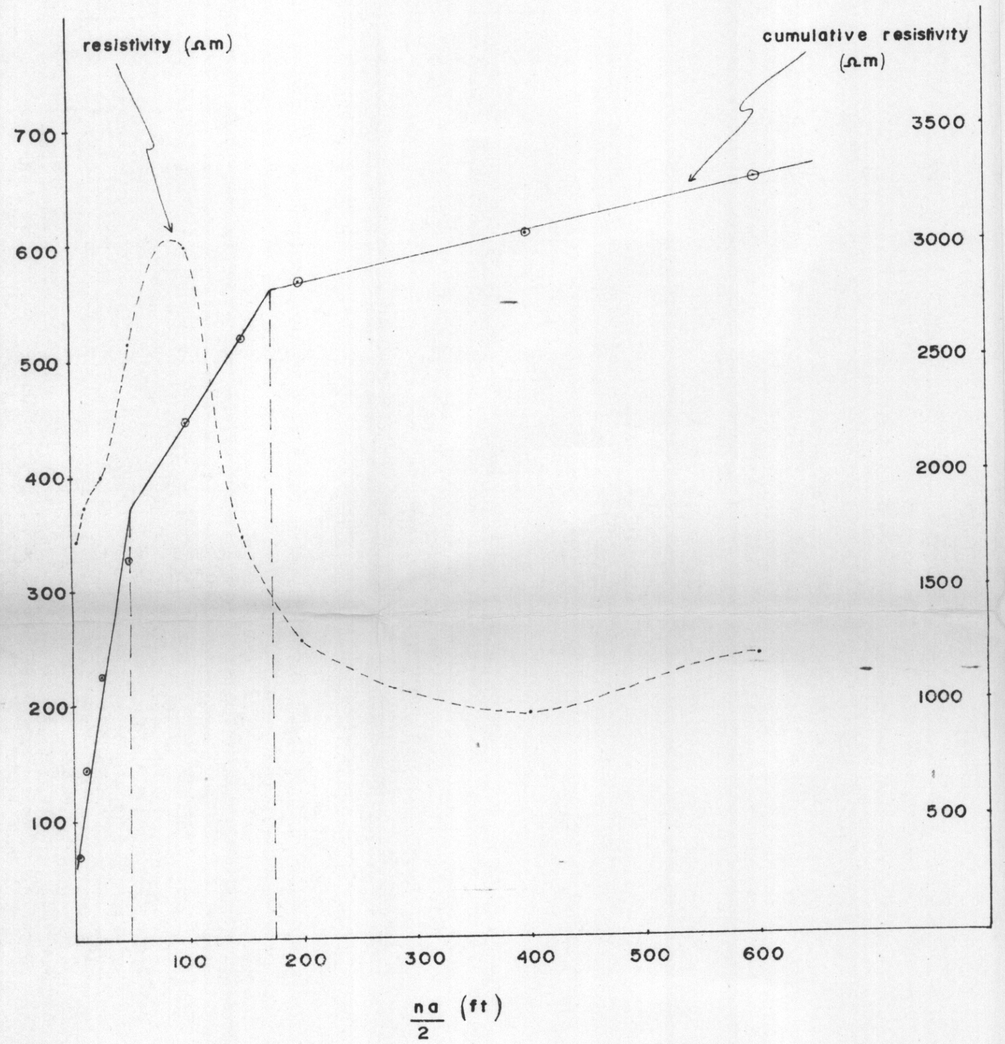
0.3-10 HZ

MAURO G. BERRETTA

JULY 1976



DIAMOND DRILL HOLE # 1



DIAMOND DRILL HOLE # 5

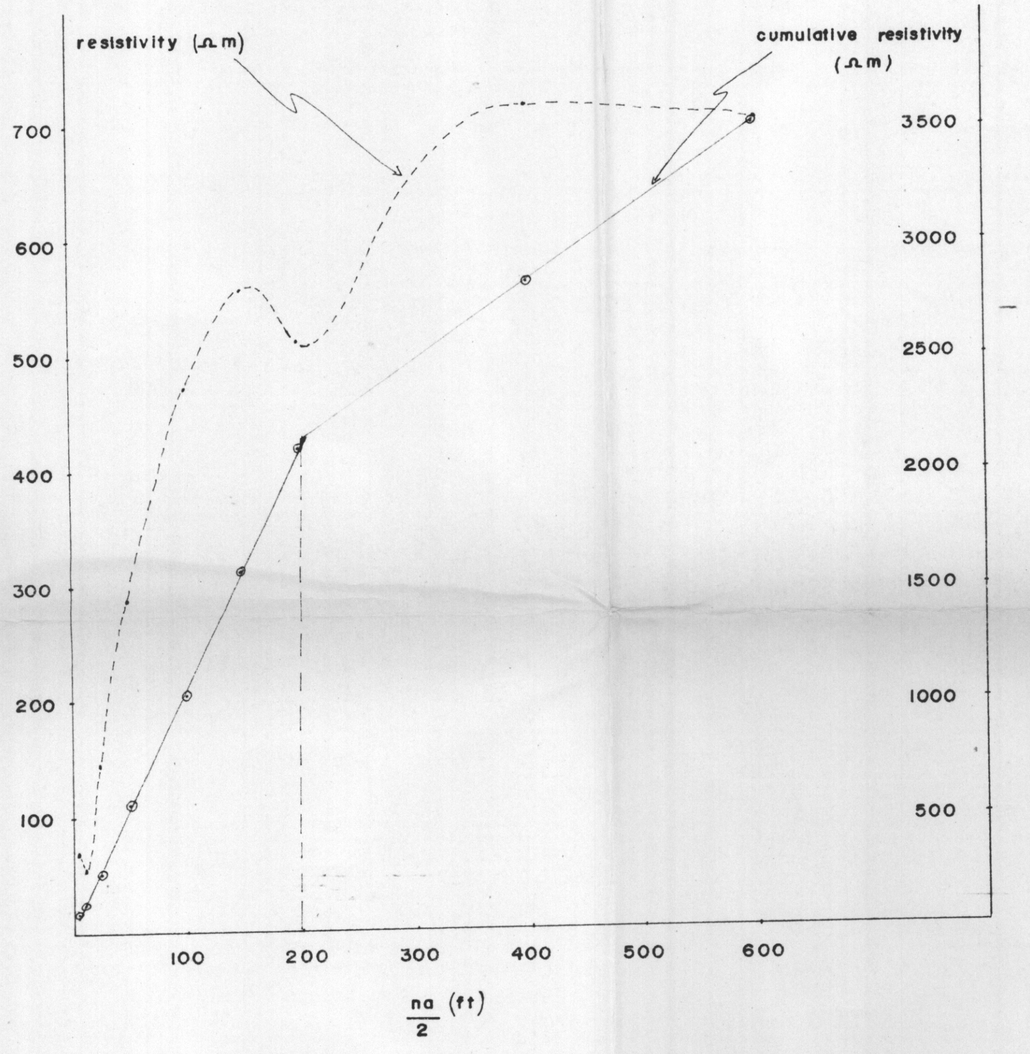


FIGURE 6

RESISTIVITY SOUNDING

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KERR ADDISON MINES LTD.

EXPANDING DIPOLE DIPOLE ARRAY

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