

2895

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2895 MAP

934/16E

REPORT ON
INDUCED POLARIZATION SURVEY
ON SOME TOP CLAIMS
BABINE LAKE AREA, BRITISH COLUMBIA
ON BEHALF OF
NITTETSU MINING CO. LTD.

by

P. J. Fominoff, B.A.Sc.
and
Jon G. Baird, B.Sc., P.Eng.

October 28, 1970

CLAIMS:

Name
TOP 1 - 163

LOCATION:

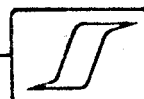
Babine Lake area, British Columbia
About 2 miles northwest of Topley Landing
Omineca Mining Division
126° 54' NE

DATES:

August 29 to September 7, 1970

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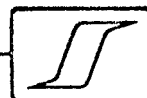
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SUMMARY

The reconnaissance induced polarization survey has located two areas, as yet undelimited in plan, of increased chargeabilities. The bedrocks in these areas may contain at least 1% by volume of metallicly conducting materials such as sulphides or other minerals known to give induced polarization responses.

To further evaluate the two areas, geological and geochemical examinations have been recommended. Predicated upon the results of these investigations more detailed induced polarization surveying may be warranted in order to precisely locate exploratory drill holes.



P. 1

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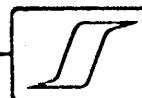
INTRODUCTION

During the period August 29 to September 7, 1970, a geophysical field party executed an induced polarization survey in the Babine Lake area, British Columbia, on behalf of Nittetsu Mining Co. Ltd. The field survey was under the direction of Mr. Peter Fominoff, B.A.Sc., a graduate geophysicist on the staff of Seigel Associates Limited.

The location of the property about 2 miles northwest of Topley Landing is shown on Plate 1 on the scale of 1" = 4 miles. The property was reached by truck over a good gravel road. The rolling surface of the property is covered by glacial drift and tree growth.

The claims covered, in whole or part, by this survey are listed on the title page of this report and are shown on Plate 2 on the scale of 1" = 1500'. These claims are held by Nittetsu Mining Co. Ltd.

Seigel Mk VII time-domain (pulse-type) induced polarization equipment has been employed on this property. The transmitting unit had a rating of 2.5 kilowatts and equal on and off times of 2.0 seconds. The receiving unit was a remote, ground-pulse type triggered by the rising and falling primary voltages set up in the ground by the transmitter. The integration of the transient polarization voltages takes place for 0.65 seconds after a 0.45 second delay time following the termination of the current-on pulse.



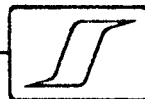
The purpose of an induced polarization survey is to map the subsurface distribution of metallicly conducting mineralization beneath the grids covered. In the present area such mineralization could include bornite, chalcopyrite, molybdenite, pyrite and other metallic sulphide minerals. Other metallic conductors such as graphite and magnetite as well as some non-metallic minerals such as chlorite and sericite can give responses not always distinguishable from sulphide mineralization. Per percentage by volume magnetite and other non-metallic minerals are expected to give much lower chargeability responses than sulphides or graphite.

The three electrode array was employed for the survey. For this electrode array, one current electrode and two potential electrodes traverse the profiles with an interelectrode spacing called "a". The second or "infinite" current electrode is placed a distance greater than $5a$ from the measuring point which is defined as the midpoint between the moving current electrode and the near potential electrode. For the present survey observations were taken for $a = 400'$.

The survey was carried out along uncut claim lines, one power line right-of-way and two roads. The locations of all survey lines are shown on Plate 2 on a scale of $1'' = 1500'$. Stations were established each 400' by measuring with the 400' wire connecting the potential electrodes. The survey totalled 19.2 line miles.

GEOLOGY

The geology of the area surrounding the present claims is shown on G.S.C. Map 671-A, Houston, on the scale $1'' = 4$ miles. As well, the B. C. Minister of Mines Annual Report for 1965 gives a good discussion



of the geology of Newman Peninsula and the Granisle copper deposit which lies about seven miles north of the present property.

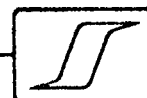
The G.S.C. Map shows the area to be overburden covered with outcrops of volcanics to the west and a small granite outcrop near the southwest corner of the property. Volcanic rocks of the Hazelton Group have been mapped to the north and south of the property. The G.S.C. Map also shows a granitic rock type to the south. It would appear most likely that the present property is largely underlain by volcanic rocks, however small intrusives may occur within the volcanics.

Two types of ore deposits may occur in the Babine Lake area. A prime target would be a disseminated sulphide copper deposit such as the Granisle ore body occurring within an intrusive rock type. A target of secondary interest would be a lode deposit occurring in the volcanic rocks.

DISCUSSION OF RESULTS

Plate 2, on the scale of 1" = 400' shows the chargeability (induced polarization characteristic of the rock) and resistivity results in profile form. The vertical scales for these profiles are 1" = 10.0 milliseconds for chargeability and 1" = 500 ohm-meters for resistivity. Also there is a plan map of the claims and survey lines on a scale of 1" = 1500'.

The chargeability profiles reveal that the background chargeability ranges from 3.0 to 6.0 milliseconds. This is a normal non-metallic background range for most rock types. With this background a uniform subsurface distribution of 1% by volume of metallicly conducting mineralization would be expected to add approximately 10.0



milliseconds to the observed responses. Chargeabilities in excess of about 10.0 milliseconds would be considered worthy of further investigation since deposits of very low concentrations of copper and molybdenum of sufficient dimensions may have economic significance.

On the TOP property, three profiles reveal sections exhibiting chargeabilities in excess of 10.0 milliseconds. Claim Line 1 shows a broad area of increased chargeabilities from 56 W to 84 W. Peak chargeability is 18.0 milliseconds. On Claim Line 2 chargeability values of 14.5 and 16.5 milliseconds have been observed at stations 70 W and 74 W respectively. It is possible that the increases on Claim Lines 1 and 2 are the expression of the same source as shown by the shaded area on Plate 2, which is named Area 1. The chargeability amplitudes are such that the bedrocks underlying Area 1 may contain approximately 1% by volume of metallicly conducting material.

At 8 E on Claim Line 6 a chargeability value of 13.5 milliseconds occurs flanked by observations of 7.5 and 6.5 milliseconds. The peak chargeability indicates a possible source containing about 1% by volume of metallicly conducting material. The source is probably less than 200' wide and may be much narrower in which case the concentration of metallicly conducting material may be greater than 1% by volume. The location of these increases shall be called Area 2 as shown on Plate 2.

Since the present coverage is of reconnaissance nature only, there are insufficient data to make precise quantitative interpretations as to the areal extent, attitude, depth below surface and metallicly conducting content of the bodies giving rise to the increased chargeabilities.



Resistivities are uniform over most of the grid area, the values being between about 50 and 100 ohm-meters. However on parts of Claim Lines 1 and 2 the resistivities range up to 950 ohm-meters. The area exhibiting increased resistivity includes Area 1 of increased chargeabilities as shown on the claim plan.

The resistivity increases may be due to changes in the type or thickness of overburden or to varying bedrock characteristics. Intrusive rocks normally exhibit higher resistivities than volcanics. It is therefore possible that intrusive rocks may underlie the increased resistivity sections of the profiles. Additional resistivity observations with various electrode spacings would be required to better determine the cause of the increases in resistivity.

CONCLUSIONS AND RECOMMENDATIONS

Two areas, one possibly extensive and the other possibly limited in areal extent, are seen to exhibit increased chargeabilities. The rocks underlying both of these may contain at least 1% by volume of metallicly conducting material. Area 1 occurs within a zone of increased resistivity which may indicate that the underlying bedrock is granitic rather than volcanic.

Geological and geochemical investigations should be carried out over both Areas 1 and 2 to determine if the rocks in these areas may contain economic type sulphide mineralization. If these investigations are favourable then induced polarization surveys on grids of lines spaced 500' apart should be carried out to determine the areal extent, depth, attitude and metallicly conducting mineral content of the sources of the



chargeability increases. Precisely located drill holes may then be proposed.

Respectfully submitted,

SEIGEL ASSOCIATES LIMITED

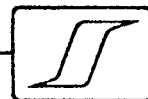
P. J. Fominoff *per JB*

P. J. Fominoff, B.A.Sc.
Geophysicist

Jon G. Baird

Jon G. Baird, B.Sc., P.Eng.
Consulting Geophysicist

Vancouver, B. C.
October 28, 1970



DOMINION OF CANADA:
PROVINCE OF BRITISH COLUMBIA.
To Wit:

In the Matter of

a geophysical survey on behalf of
Nittetsu Mining Company Limited

I, L. A. Merrifield for Seigel Associates Limited

of 750 - 890 West Pender Street, Vancouver

in the Province of British Columbia, do solemnly declare that an induced polarization survey has been executed on TOP 1 - 163 claims, Babine Lake area, British Columbia between August 29 to September 7, 1970. The following expenses were incurred:

(1) Wages:			
	P. Fominoff	10 days @ \$35.00/day	\$350.00
	F. Butikofer	10 days @ \$27.50/day	275.00
	R. Gibbons	10 days @ \$27.50/day	275.00
	O Bangeter	10 days @ \$27.50/day	275.00
	H. Zehnder	10 days @ \$27.50/day	275.00
			<u>275.00</u>
			\$1,450.00
			\$1,450.00
(2)	Transportation and shipping to the job.		463.25
(3)	Transportation on the job.		369.95
(4)	Use of geophysical equipment		
	10 days @ \$60.00/day		600.00
(5)	Food and living expenses		676.97
(6)	Paid to Seigel Associates Limited		
	to cover geophysicist's supervision,		
	calculating, plotting and fairdrawing		
	data and preparation of final reports.		<u>1,758.98</u>
			\$5,319.15

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the City
of Vancouver, in the
Province of British Columbia, this 11th
day of February, 1971, A.D.

L. A. Merrifield

Jessie Turner
Commissioner for taking Affidavits within British Columbia or
A Notary Public in and for the Province of British Columbia.
Sub-mining Recorder

AFFIDAVIT RE: WORK EXPENDITURES

I, Akira Hirayama of 1006 - 555 West 28 Street in the Municipality of North Vancouver in the Province of British Columbia, DO SOLEMNLY DECLARE that the road construction, geochemical and geophysical programme on the top mineral claims owned by Nittetsu Mining Co., Ltd. was completed during the field season of 1970 at a total property related cost of at least \$16,300.00. This cost includes:

\$5008.00	(for geochemical survey)
\$5319.15	(for geophysical survey)
\$3400.00	(for road construction)
\$2600.00	(for supervision by Nittetsu personnel including property transportation, helicopter service, wages and board)

AND I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act".

DECLARED before me at the City
of Vancouver, in the Province
of British Columbia, this
day of March, A.D. 1971


Akira Hirayama

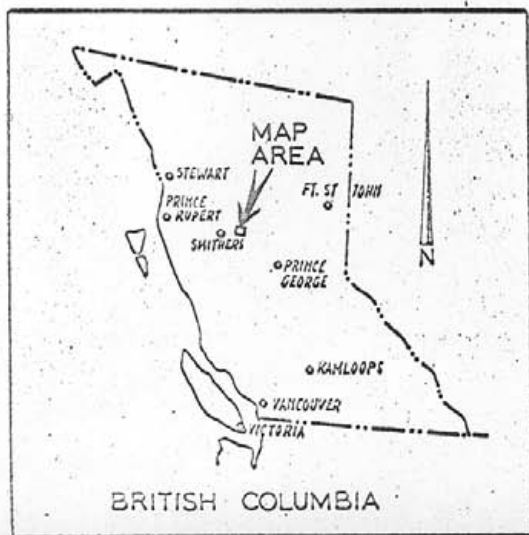
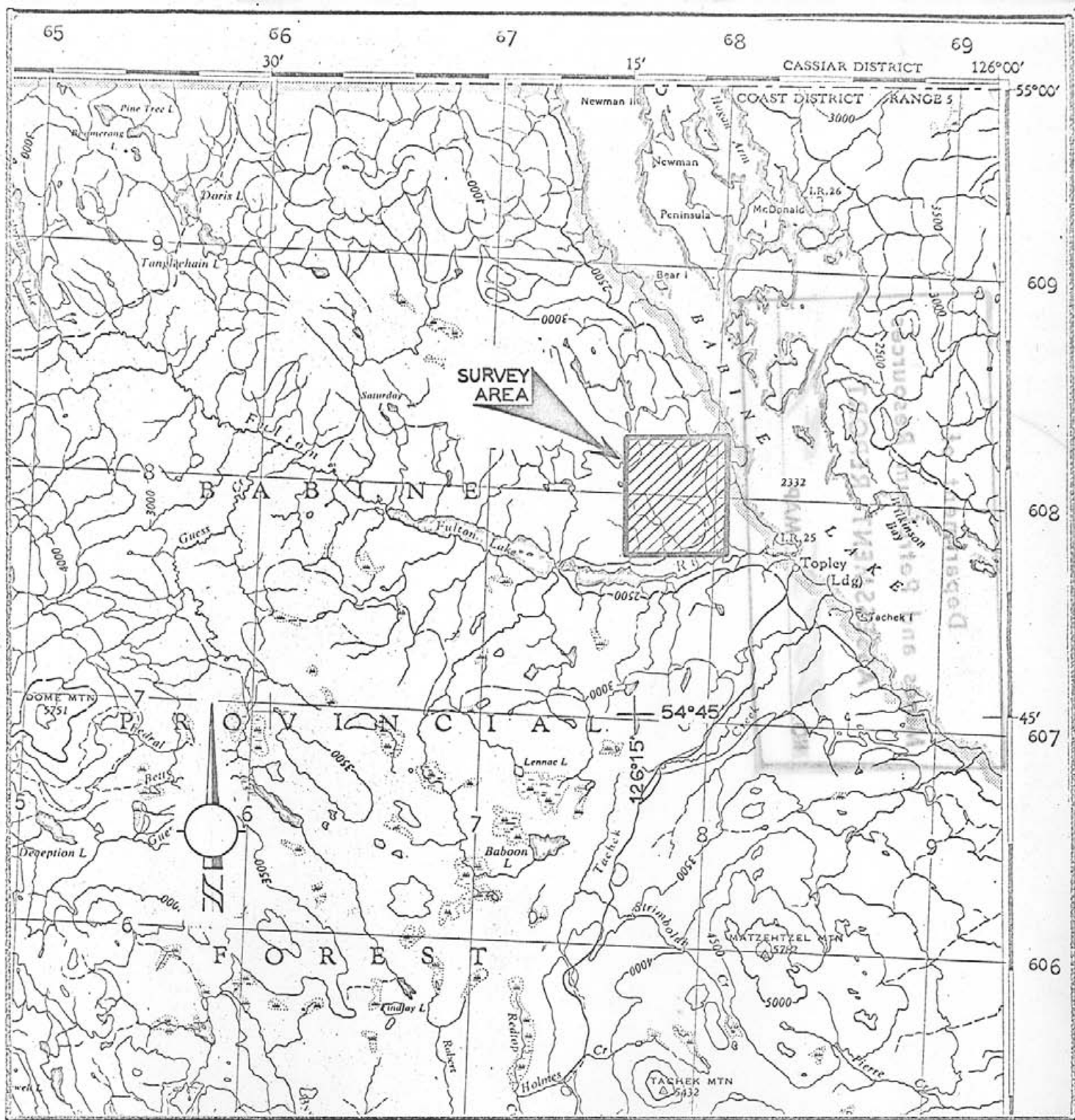
Declared before me at the
of _____, in the
Province of British Columbia, this
day of _____, A.D.

VANCOUVER, B. C.

MAR 5 1971


Submitting Records

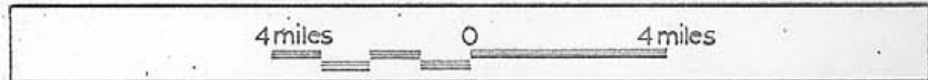
A Commissioner for taking Affidavits within British Columbia
A Notary Public in and for the Province of British Columbia.



NITTETSU MINING CO. LTD.

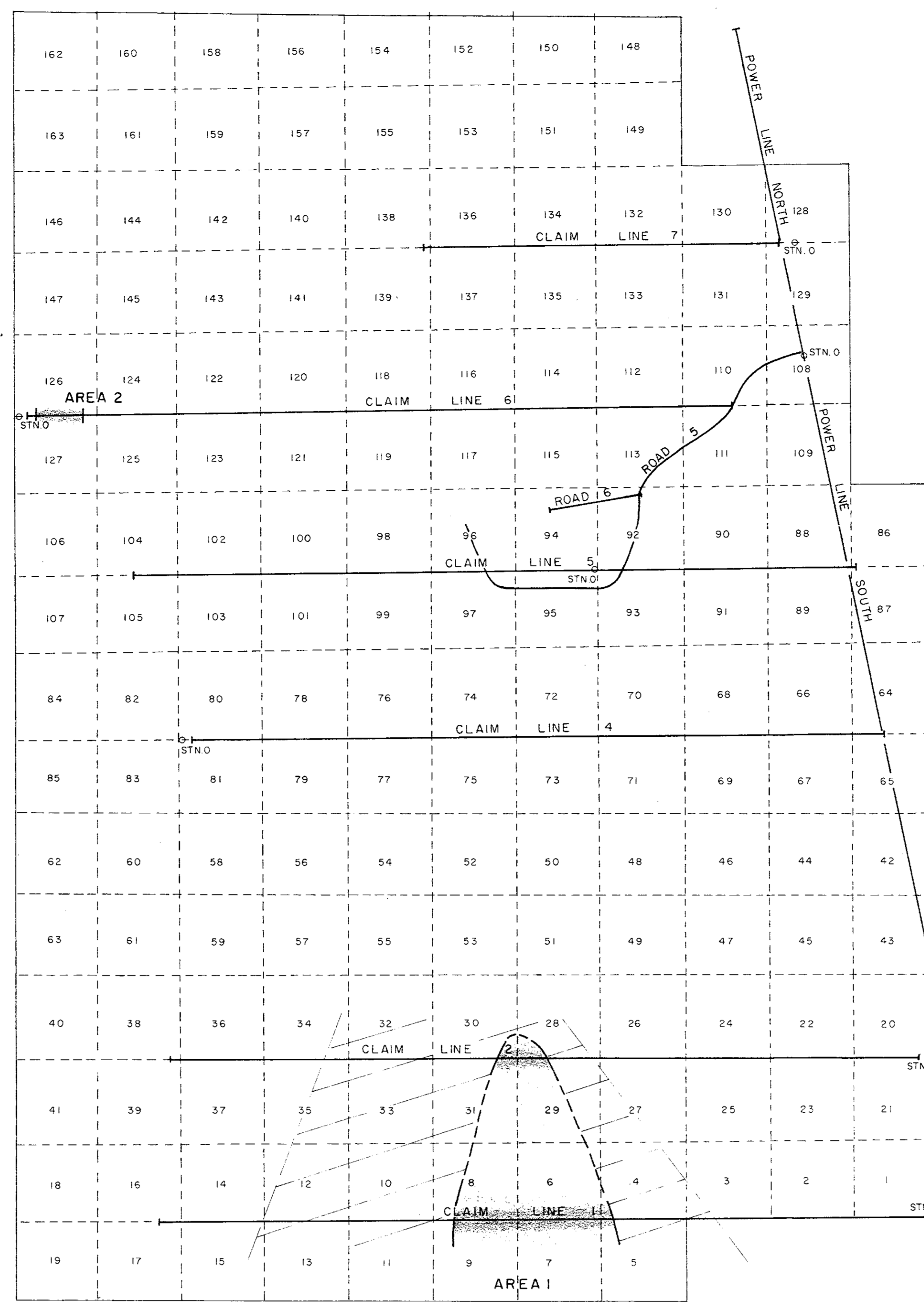
LOCATION MAP
 - TOP GROUP -
 BABINE LAKE AREA / BRITISH COLUMBIA

Handwritten signature: J. Baird



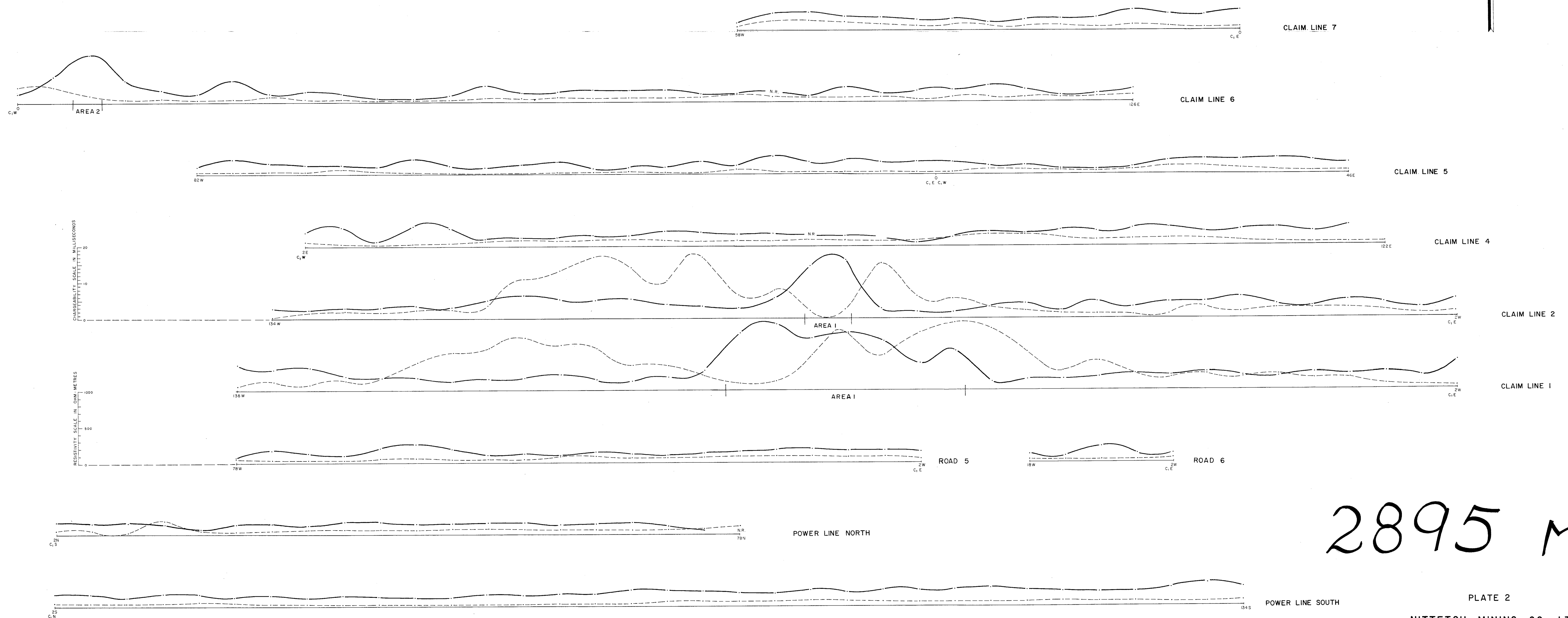
Survey by
 SEIGEL ASSOCIATES LTD.
 August 1970

PLATE 1



TOP CLAIMS

APPROXIMATE SCALE: 1" = 1500'



2895 M-2

LEGEND
 CHARGEABILITY SCALE: 1" = 10 MILLISECONDS
 ELECTRODE SPACING: 1" = 400'
 RESISTIVITY SCALE: 1" = 500 OHM-METRES
 ELECTRODE SPACING: 1" = 400'

NOTES
 SCINTREX MARK VII INDUCED POLARIZATION INSTRUMENTATION
 THREE ELECTRODE ARRAY

C, LOCATION AS INDICATED (E.C. = C, TO NORTH OF ARRAY)

AREAS OF INCREASED CHARGEABILITIES INTERSECTED BY TRAVERSES
 POSSIBLE EXTENSIVE ZONE OF INCREASED CHARGEABILITIES
 POSSIBLE EXTENSIVE ZONE OF INCREASED RESISTIVITIES

TO ACCOMPANY A GEOPHYSICAL REPORT BY
 P.J. FOMINOFF AND J.G. BAIRD DATED OCTOBER 28, 1970

PLATE 2
 NITTETSU MINING CO. LTD.
 TOP CLAIMS
 BABINE LAKE AREA, BRITISH COLUMBIA
 INDUCED POLARIZATION SURVEY

Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
 NO. 2895 M.P. #2 SURVEY BY SEIGEL ASSOCIATES LIMITED
 AUGUST 1970

1" = 400'
 SCALE IN FEET