

REPORT ON
AN INDUCED POLARIZATION SURVEY
SPIUS CREEK PROJECT
MERRITT AREA, BRITISH COLUMBIA
ON BEHALF OF
ARROW INTER-AMERICA CORPORATION

92H/14W

by

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

and

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

November 20, 1970

CLAIMS:

Name

GOSSAN 1 - 14, 16, 22, 24

LOCATION:

About 25 miles SW of Merritt, B.C.

Nicola Mining Division

121° 49' NE

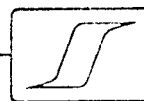
N. 49° 55' W. 121° 15'

DATES:

September 26 to October 8, 1970

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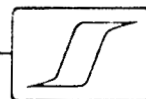
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SUMMARY

The present induced polarization survey has revealed that most of the survey area may be underlain by rocks containing from 1% to 3% by volume of metallicly conducting mineralization such as sulphides or higher percentages of minerals such as sericite or kaolinite which may contribute to induced polarization responses.

Since the increased chargeability responses are so wide spread it is difficult to recommend targets for further investigation based upon the geophysical results alone. If correlations of the geophysical results with geological and geochemical data are favourable, then diamond drilling may be considered.



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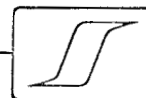
INTRODUCTION

During the period September 26 to October 8, 1970, a geophysical field party executed an induced polarization survey in the Merritt area, British Columbia on behalf of Arrow Inter-America Corporation. The field survey was under the direction of Mr. Francis Bourqui, an experienced geophysical operator on the staff of Seigel Associates Limited.

The location of the property is shown on Plate 1 on a scale of 1" = 4 miles. The claims lie about 25 miles SW of Merritt, B. C., near Spius Creek. Access to the grid was by truck over a dirt road from Merritt. The survey was conducted from a field camp on the property. Glacial drift covers most of the surface of the property and the topographic relief may be described as steep.

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" = 400'.

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

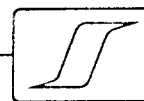


of the current-on pulse.

The purpose of an induced polarization survey is to map the subsurface distribution of metallically conducting mineralization beneath the grids covered. In the present area such mineralization could include chalcopyrite, molybdenite, pyrite and other metallic sulphide minerals. Metallic minerals such as graphite and magnetite as well as non-metallic minerals such as chlorite and sericite can give responses not always distinguishable from sulphide mineralization.

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. A schematic representation of this electrode array is shown on Plates 3 and 4. For the present survey observations were taken for $a = 200'$ and $400'$. Some detail observations were made with $a = 50'$, $100'$ and $600'$.

Two Wenner Expander Depth Tests were carried out. The Wenner array requires two current electrodes and two potential electrodes equi-spaced along the survey lines with an interelectrode spacing called "a". As shown schematically on Plate 5, the current electrodes are placed on the outside of the array and the plotting point is at the centre of the array. In order to investigate changes in chargeability and resistivity with depth a number of observations are taken beginning with small values of "a" and expanding outwards about the same plotting point.



As shown on Plate 2, the survey grid consisted of lines oriented N 20° W and two baselines oriented N 70° E. The interline spacing was 400' in the west part of the grid and 800' in the east part. Station intervals were 200' for the reconnaissance survey and 100' and 50' for the detail survey. The survey totalled 7.2 line miles.

GEOLOGY

The geology of an area including and surrounding the present claims is shown on G.S.C. Map 737A, "Hope" on a scale of 1" = 4 miles.

The property is underlain by acidic intrusive rock known as the Eagle Granodiorite, part of an extensive Jurassic batholith. Within the survey grid areas of brecciation, hydrothermal alteration and silicification have been mapped. Disseminated chalcopyrite, pyrite and minor indications of molybdenite are present on the property.

The target in this survey was a large tonnage, low grade type of sulphide deposit, the upper surface of which would approach to within about 300' of the ground surface.

DISCUSSION OF RESULTS

Plate 3, on the scale of 1" = 400' shows the chargeability results in profile form. The vertical scale is 1" = 10.0 milliseconds. Different symbols, explained in the legend, have been used to differentiate between observations taken with the various electrode spacings. In order to accommodate the geophysical profiles, the interline spacing is not to scale.

Plate 4, also on the scale of 1" = 400' shows the resistivity results in profile form. A logarithmic scale has been used with 2" = 1 logarithmic cycle and the line trace taken as 1000 ohm-meters.

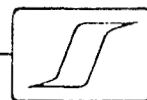
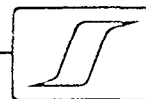


Plate 5 shows the results of the two chargeability-resistivity depth tests executed employing the Wenner array. These results have been plotted on two cycle logarithmic paper as is usual for interpretation of this type of data.

The profiles on Plate 3 indicate that the observed chargeability values range from 1.0 to in excess of 30.0 milliseconds. Most of the survey area exhibits chargeability responses in excess of 10.0 milliseconds which is a moderate chargeability level by normal standards. For uniform subsurface distributions, each 1% by volume of metallicly conducting mineralization is expected to increase the chargeability level by about 10.0 milliseconds. It appears therefore that most of the rocks within the upper 300' of the present property contain from 1% to 3% by volume of metallicly conducting mineralization such as sulphide and/or higher percentages by volume of minerals such as magnetite, sericite, or kaolinite which can contribute to chargeability responses. Only south of 4 S on L 0 are the chargeability responses in what might be termed a non-metallic range. Two zones of the highest metallicly conducting content have been outlined on Plate 2.

The observed resistivity values range from a few hundred ohm-meters to values in excess of 10,000 ohm-meters with average values being about 2000 or 3000 ohm-meters. Changes in resistivity may arise from changes in the type or thickness of overburden as well as from changes in the character of the bedrock however since similar curve forms and amplitudes are seen for both the 200' and 400' electrode spacings, the overburden is not expected to greatly affect the observed resistivities on the present property.



A low resistivity zone is suggested on the south ends of all profiles which extend south of the main baseline. These resistivity decreases are accompanied by decreases in chargeability as shown particularly on L 0 which is the longest profile to the south. This abrupt change in the geophysical character of the rocks occurring at about 4 S on most survey lines suggests a contact between two distinctly different rock types. The location of this contact is shown on Plate 2.

The profile data on L 0 and L 32 E as well as the Wenner Depth Test data for 8 S and 10 S on L 0 are sufficient for the interpretation of the thickness of the upper chargeability and resistivity layers. If the upper layer is overburden, then the thickness of the upper layer would correspond to the overburden depth. The results for 10 S on L 0 are not clearly a two layer case although the upper layer appears to be of the order of 30' thick. An apparent second interface at about 155' may be due to lateral effects rather than vertical changes in physical properties. The upper layer thickness near 10 N on L 0 is also about 30' although the chargeability profile for the 50' electrode spacing indicates that part of the lower layer may come within a few feet of the surface near 8 N. On L 32 S the upper layer appears to be about 50' thick from 4 N to 20 N and increases to about 80' thick in the area of 20 N to 30 N.

CONCLUSIONS AND RECOMMENDATIONS

The present induced polarization survey has revealed that most of the rocks underlying the grid to a depth of 300' contain from 1% to 3% by volume of metallically conducting minerals. From the known geology such mineralization could be pyrite and/or copper and molybdenum sulphides. It is also possible that alteration minerals such as sericite and kaolinite may contribute to the chargeability responses.



With such wide spread increased chargeabilities it is difficult to recommend targets for further investigation based upon the geophysical results alone although initial interest would likely centre in the zones of highest chargeabilities. It is therefore recommended that geological and geochemical studies be made and compared with the present data. If a favourable area is thereby delineated, diamond drilling may be warranted.

Respectfully submitted,

SEIGEL ASSOCIATES LIMITED

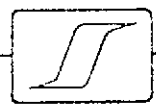
P. J. Fominoff *per JB*

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

Jon G. Baird

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

Vancouver, B. C.
November 20, 1970



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

In the Matter of a geophysical survey on behalf of
Arrow Inter-America Corporation

I, J. L. McCrea 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 the GOSSAN 1 - 14, 16, 22 and 24 claims, Merritt area, British Columbia between September 26 to October 8, 1970. The following expenses were incurred:

(1) Wages:			
	F. Bourqui	13 days at \$35.00/day	\$455.00
	F. Butikofer	13 days at \$27.50/day	357.50
	G. Franz	13 days at \$27.50/day	357.50
	F. Labrousse	13 days at \$27.50/day	357.50
	H. Zehnder	13 days at \$27.50/day	357.50
			<u>\$1,885.00</u>
			\$1,885.00
(2)	Transportation & shipping to the job		280.60
(3)	Transportation on the job		135.00
(4)	Food and living expenses		247.30
(5)	Use of geophysical equipment		
		13 days at \$60.00/day	780.00
(6)	Paid to Seigel Associates Limited to cover geophysicist's supervision, calculating, plotting and fairdrawing data and preparation of final reports.		<u>1,397.29</u>
			\$4,725.19

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 9th
day of December, 1970, A.D.

J. L. McCrea

Jean Turner

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

Sub-mining Recorder

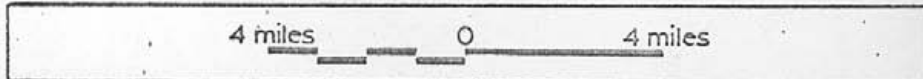


ARROW INTER - AMERICA CORPORATION

LOCATION MAP
 SPIUS CREEK PROJECT

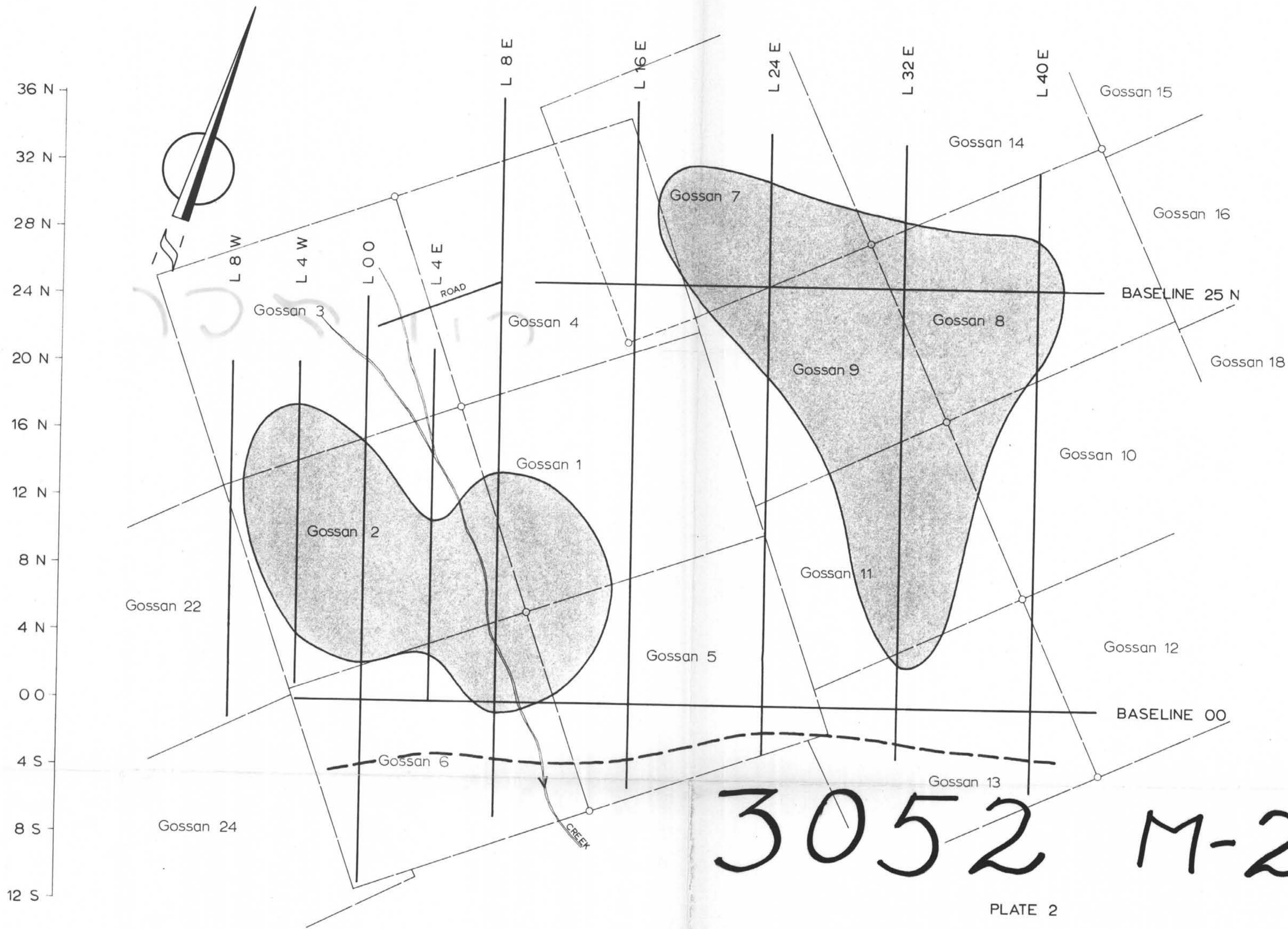
J. Baird

MERRITT AREA, BRITISH COLUMBIA



Survey by
 SEIGEL ASSOCIATES LTD.
 October 1970

PLATE 1



LEGEND



ZONES OF HIGHEST CHARGEABILITY RESPONSE
GENERALLY IN EXCESS OF 20 MILLISECONDS



CONTACT INTERPRETED FROM CHARGEABILITY AND RESISTIVITY

3052 M-2

PLATE 2

ARROW INTER-AMERICA CORPORATION

SPIUS CREEK PROJECT
MERRITT AREA, BRITISH COLUMBIA

INDUCED POLARIZATION SURVEY
GRID AND CLAIMS

SCALE 1" = 400'



Department of
Mineral and Petroleum Resources
ASSESSMENT REPORT
NO. 3052 MAP 42

SURVEY BY SEIGEL ASSOCIATES LTD. OCTOBER 1970

TO ACCOMPANY A GEOPHYSICAL REPORT
BY P.J. FOMINOFF AND J.G. BAIRD DATED NOVEMBER 20, 1970

J.G. Baird

125 8 45 0 4N 8 12 16 20 24 28 32 36N

L8W

L4W

L0

L4E

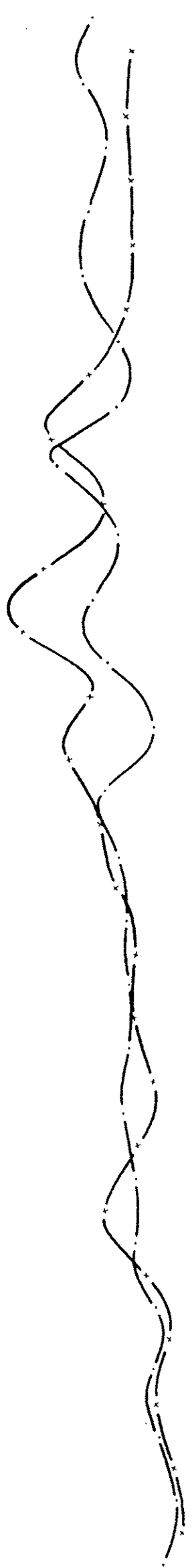
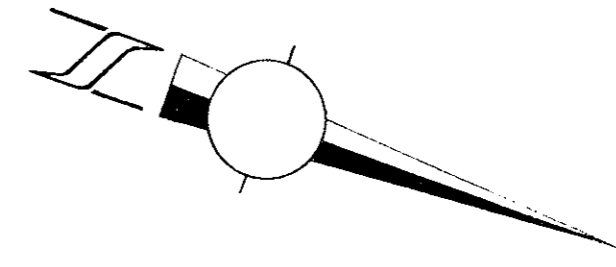
L8E

L16E

L24E

L32E

L40E



BASELINE 0 44E
 C, WEST C, EAST
 4W 0 4E

BASELINE 25 N + road

44E
 ROAD 8E C, WEST C, EAST
 72E C, EAST

CHARGEABILITY SCALE IN MILLISECONDS
 20
 10
 0

3052 M-3

PLATE 3

ARROW INTER-AMERICA CORPORATION

SPIUS CREEK PROJECT
 MERRITT AREA / BRITISH COLUMBIA

INDUCED POLARIZATION SURVEY
 CHARGEABILITY PROFILES

SCALE: 1" = 400'



SURVEY BY SEIGEL ASSOCIATES LTD. OCTOBER 1970

JG Baird

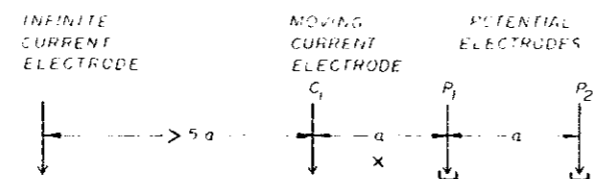
LEGEND

CHARGEABILITY SCALE 1" = 10 MILLISECONDS
 ELECTRODE SPACING
 a = 600'
 a = 400'
 a = 200'
 a = 100'
 a = 50'

NOTES

SCINTREX MARK VII INDUCED POLARIZATION INSTRUMENTATION

THREE ELECTRODE ARRAY



C, SOUTH OF ARRAY UNLESS INDICATED OTHERWISE
 INTERLINE SPACING NOT TO SCALE

Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
 NO. 3052 MAP #3

12S 8 4S 0 4N 8 12 16 20 24 28 32 36N

L8W

L4W

L0

L4E

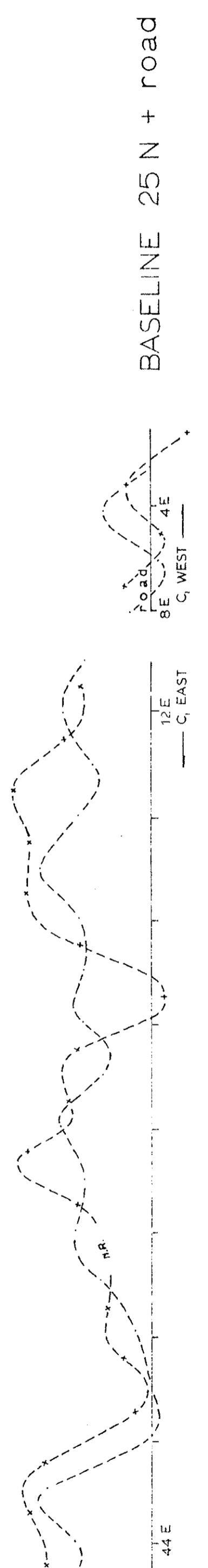
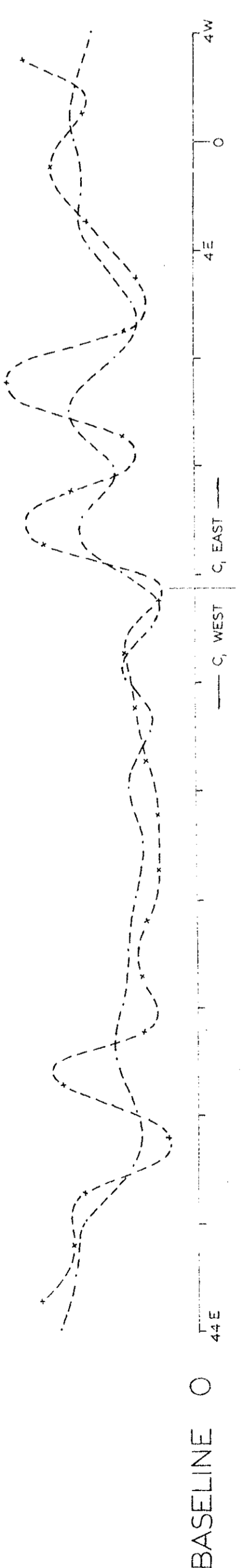
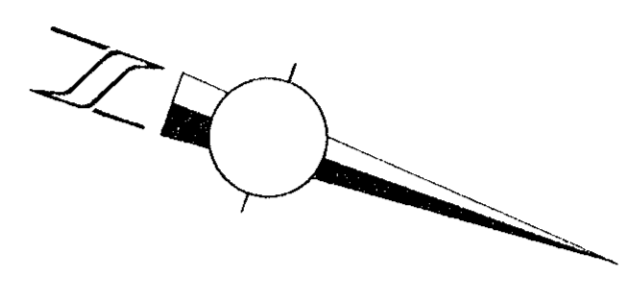
L8E

L16E

L24E

L32E

L40E



10000
1000
100
RESISTIVITY SCALE IN OHM METRES

3052 M-4

PLATE 4

ARROW INTER-AMERICA CORPORATION
SPIUS CREEK PROJECT
MERRITT AREA / BRITISH COLUMBIA

INDUCED POLARIZATION SURVEY
RESISTIVITY PROFILES

SCALE: 1" = 400'

400' 0 400' 800'

SURVEY BY SEIGEL ASSOCIATES LTD. OCTOBER 1970

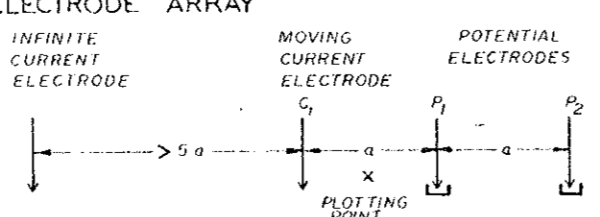
J. Baird

LEGEND

RESISTIVITY SCALE 2¹ - 1 LOGARITHMIC CYCLE WITH
LINETRACE TAKEN AS 1000 Ω-m
ELECTRODE SPACING
a = 600' -----
a = 400' -----
a = 200' -----
a = 100' -----
a = 50' -----

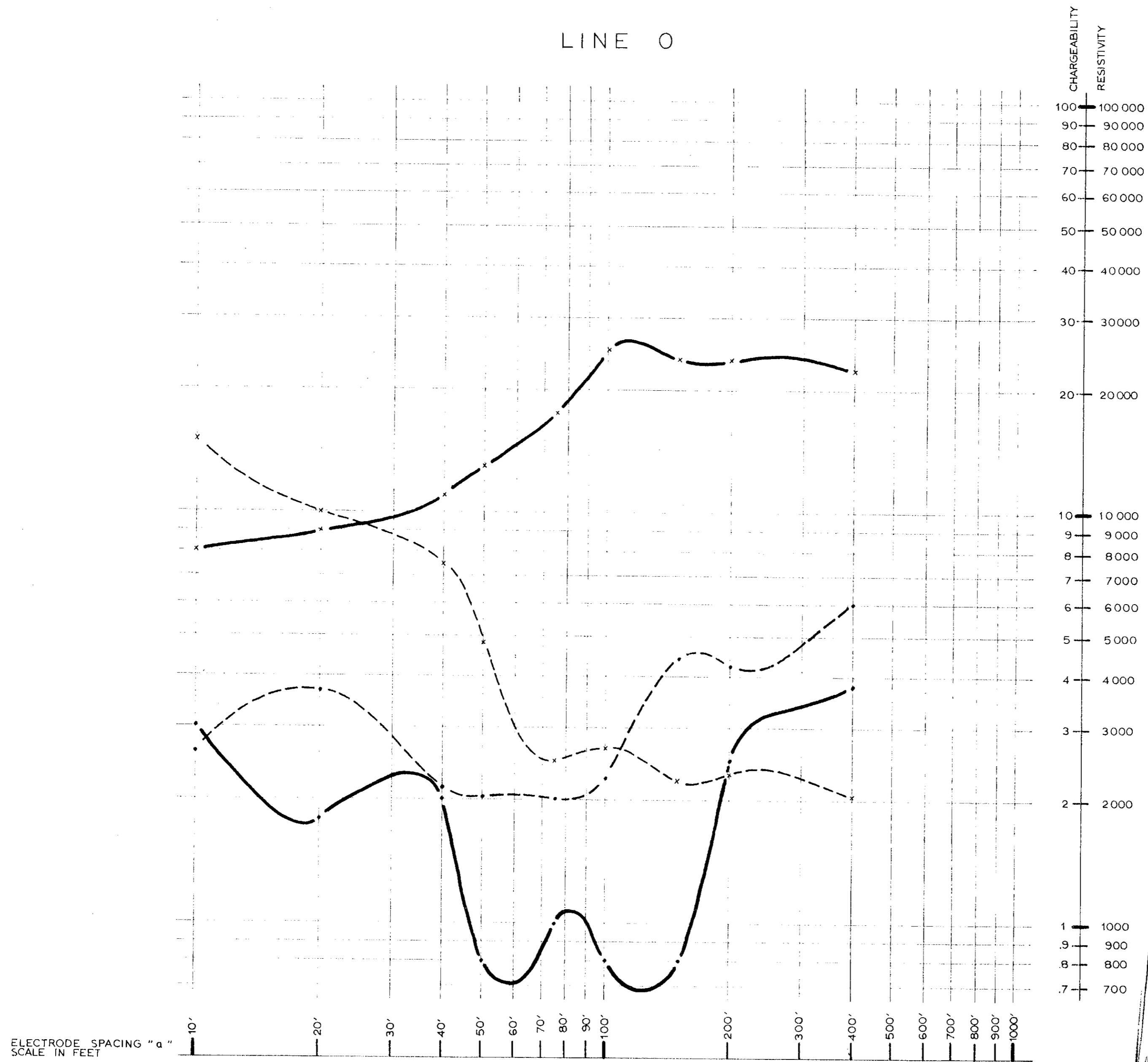
NOTES

SCINTREX MARK VII INDUCED POLARIZATION INSTRUMENTATION
THREE ELECTRODE ARRAY
INFINITE CURRENT ELECTRODE MOVING CURRENT ELECTRODE POTENTIAL ELECTRODES
C, SOUTH OF ARRAY UNLESS INDICATED OTHERWISE
INTERLINE SPACING NOT TO SCALE



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3052 MAP #44

LINE 0



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3052 MAP #5

PLATE 5

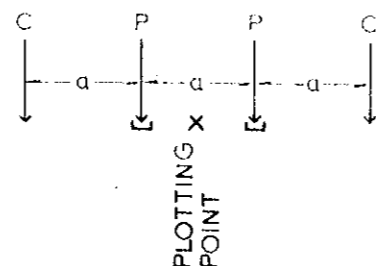
LEGEND

CHARGEABILITY
PLOTING POINT 8 S : 10 N :

RESISTIVITY
PLOTING POINT 8 S : 10 N :

NOTES

SCINTREX MARK VII INDUCED POLARIZATION INSTRUMENTATION
WENNER ARRAY



ARROW INTER-AMERICA CORPORATION
SPIUS CREEK PROJECT
MERRITT AREA BRITISH COLUMBIA

INDUCED POLARIZATION SURVEY
WENNER EXPANDER DEPTH TEST

3052 M-5 *J. Baird*

TO ACCOMPANY A GEOPHYSICAL REPORT
BY P.J. FOMINOFF AND J.G. BAIRD DATED NOVEMBER 20, 1970

SURVEY BY SEIGEL ASSOCIATES LTD. OCTOBER 1970