REPORT ON
INDUCED POLARIZATION SURVEY
OF THE
MARN CLAIM GROUP, B.C.
FOR
KEL-GLEN MINES LIMITED
BY

MARN - # 1 to 29, 31, 33, 35 and 37

ROB - # 1 to 8, 11, 12, and 15 to 30

CAM - # 1 to 8, 11 to 14, 16, 18 and 20 to 26

VISC - # 1 to 6

BOB - # 1 and 2

TOM - # 1 and 2

KEL-FR. - # 1

GLEN-FR. - # 1

3 parts

92H / 16E

8 75
PART 1 of 3

875
PART 1
OF 3

REPORT ON
INDUCED POLARIZATION SURVEY
OF THE
MARN CLAIM GROUP, B.C.
FOR
KEL-GLEN MINES LIMITED
BY
CANADIAN AERO MINERAL SURVEYS LIMITED
Project No. 7011.

REPORT ON

INDUCED POLARIZATION SURVEY

OF THE

MARN CLAIM GROUP, B.C.

FOR

KEL-GLEN MINES LIMITED

BY

CANADIAN AERO MINERAL SURVEYS LIMITED

Project No. 7011.

R. Pedersen,
Geophysicist.

O. Norgaard, P.Eng.,

OTTAWA, Ontario,
October 14, 1966.

TABLE OF CONTENTS

SUMMARY

In the period from August 29 to September 16, 1966, an induced polarization survey was carried out by Canadian Aero Mineral Surveys Limited over part of the Marn Claim Group located in the Brenda Lake Area of British Columbia on behalf of Kel-Glen Mines Limited. The present survey is an extension to the IP survey completed in the period from June 13 to August 3, 1966.

Most of the area covered by the present IP survey yielded anomalous polarization responses in the order of 20.0-40.0 milliseconds indicating the presence of 2%-10% average by volume of polarizable material. The source of the anomalous responses is probably pyrite and graphite known to occur within the sediments underlying most of the area covered.

Two indications of possible geological contacts were noted.

REPORT ON
INDUCED POLARIZATION SURVEY
ON THE
MARN CLAIM GROUP, B.C.
FOR
KEL-GLEN MINES LIMITED

I. INTRODUCTION

In the period from August 29 to September 16, 1966, an induced polarization survey was carried out by Canadian Aero Mineral Surveys Limited over part of the Marn claim group located in the Brenda Lake Area of British Columbia on behalf of Kel-Glen Mines Limited. The present survey is an extension of the IP survey completed in the period from June 13 to August 3, 1966.

A total of about 8 miles of line was surveyed from two instrument set-ups. The greater part of this coverage consists of detailed work. The survey was conducted by R. Pedersen, B.Sc.

The purpose of the induced polarization survey was to map the sub-surface distribution of metallic sulphide mineralization to aid, if possible, in the tracing of the sediment-granodiorite contact, the location of which was known in one area covered by the previous survey. This survey had revealed a substantial polarization response in the sediments along a section of the contact which had been mapped geologically.

For the present survey, high sensitivity, D.C. pulse-type equipment was employed with a current on-time of 1.5 seconds and a measuring time of 0.5 seconds. The instrument used was the Sharpe Instruments "Seigel Mark V-A" model.

Throughout the survey a standard equispaced three electrode array was used employing an electrode spacing of 400 feet. North of line 112 South the survey was conducted on north-south lines spaced at approximately 200 foot intervals. Readings on these lines were taken at 100 foot intervals. South of line 152 South readings were taken along east-west lines spaced at approximately 800 foot intervals.

II. DISCUSSION OF RESULTS

The results of the induced polarization survey are presented in profile form on Plates 1(a) and 1(b) at the scale of 1 inch = 200 feet along the profiles. For the sake of clarity of presentation the lines are not spaced to scale in the profile presentation. The apparent chargeabilities are plotted at the scale of 1 inch = 5.0 milliseconds, and apparent resistivity values in ohm meters are plotted on a logarithmic scale of 2 inches = 1 cycle (100-1000 ohm meters). The apparent chargeability values are also presented in contour form on Plates 2 (a) and 2 (b). Plate 2 (a) is at the scale of 1 inch = 100 feet and shows the results obtained on the north-south lines in the vicinity of the sediment-granodiorite contact as presently known from geological mapping. Plate 2 (b) is at the scale of 1 inch = 400 feet (approximately). For the regions shown on this plate one must bear in mind the rather large line spacing (approximately 800 feet) in relation to the electrode spacing employed (400 feet) when considering the accuracy

of the contours. No attempt was made at contouring chargeabilities greater than 20.0 milliseconds since the results obtained using an electrode spacing of 400 feet in contoured form do not give a true indication of the distribution of the polarizable material for near-surface sources.

The base maps for the plan maps were supplied by Kel-Glen Mines Limited.

Most of the area covered by the present survey has been geologically mapped as sediments locally known as the Nicola Series which here are mostly composed of greywacke; quartzite and argillite have also been observed. Trending northwest-southeast through Marn claims 13, 14 and 16 is the sediment-granodiorite contact which appears to dip towards the southwest as do the sediments near the contact. Some leucogranodiorite dikes have been mapped at various places within the sediments. The geological field maps were prepared by Dr. E. J. Lees and were supplied by Kel-Glen Mines Limited.

The normal background apparent chargeability responses observed over the granodiorite using an electrode spacing of 400 feet are in the order of 1.5-2.5 milliseconds. Over the sediments the responses ranged from 20.0-40.0 milliseconds suggesting the presence of 2%-10% average by volume of polarizable material throughout this rock type within the areas covered. Both pyrite and graphite have been noted in the sediments. Some of the chargeability values

obtained over the sediments are marked as questionable. Although there is no doubt about the approximate range of these observations the absolute value is questioned because of the accuracy with which the primary voltages could be read. In certain areas where the resistivities are very low the primary voltages observed were so small that it was not within the scope of the instruments to measure them exactly.

Although high chargeabilities were noted over most of the area covered by the present survey a drop in response observed on Marn Claim 12 could either indicate a change in rock type or a disappearance of the polarizable material within the sediments. If the change is due to the presence of a geological contact then this area should be closely checked for the presence of molybdenum which has been discovered on the contact to the north cutting through Marn Claims 13, 14 and 16. The change in response appears to take place at a boundary located approximately at 22 West-24 West on line 120 South.

Another possible change in rock type is indicated in the southeastern corner of the south area covered by the present survey (Marn Claims 1 and 3). There is no appreciable change in the polarization responses here but a marked change in the apparent resistivities was observed. Values of about 1000 ohm meters were

noted at the east end of line 192 South whereas resistivities west of 12 West on the line are less than 100 ohm meters. Considering present geological knowledge of the Brenda Lake Area, it is quite plausible that the sediment-granodiorite contact passes through this section. A close check for a geological explanation of the change in resistivities here is recommended.

If mineralization of interest is discovered within the region of high polarization responses (20.0-40.0 milliseconds) detailed IP surveying employing electrode spacings smaller than 400 feet would be required in order to resolve responses from the multiple zones within the sediments.

III. CONCLUSIONS

Most of the area covered by the present IP survey is underlain by sediments with known occurrences of graphite and pyrite. Anomalous polarization responses in the order of 20.0-40.0 milliseconds were observed almost everywhere indicating the presence of 2%-10% average by volume of polarizable material.

A marked increase in the observed apparent resistivity values noted in the south area on Marn Claims 1 and 3 and a distinct decrease in polarization responses in the north area on Marn Claim 12

might indicate changes in rock types. A detailed investigation of these two particular areas is recommended.

Respectfully submitted,

P. Norgaard, P.Eng.,
Sr. Geophysicist.

OTTAWA, Ontario,
October 14, 1966.

E. Pedersen,
Geophysicist.

A P P E N D I X I

The following Canadian Aero Mineral Surveys Limited personnel were necessary to the completion of the induced polarisation survey carried out over a portion of the Marn Claim Groups in the period from August 29 to September 16, 1966.

	No. of Man Days
Rolf Pedersen, Geophysicist (Field) Box 468, R.R. 5, (Office) Ottawa, Ont.	15 2
P. Norgaard, Geophysicist (Office) 790 Springland Drive, Ottawa, Ont.	1
A. Martin, Draughtsman Ottawa, Ont.	
Garfield Picard, Helper 51 Church St., Levack, Ont.	14½
Mike Kellett, Helper 100 Hemlock St., Levack, Ont.	14½
Dave McLaughlin, Helper Darien Farms, Okanagan Mission, B.C.	5½
Robert Malmberg, Helper R.R. 1, Summerland, B.C.	?
Patrick Browne-Clayton, Helper R.R. 4, Kelowna, B.C.	1
Total -	64½

OTTAWA, Ontario,
October 14, 1966.

P. Norgaard, P.Eng.,
Sr. Geophysicist.

CAM 1 | CAM 2 | CAM 13 | CAM 14 | CAM 21 | CAM 22 | CAM 20 | CAM 19

CAM 3 | CAM 4 | CAM 11 | CAM 12 | CAM 23 | CAM 24 | CAM 18 | CAM 17

CAM 5 | CAM 6 | CAM 7 | CAM 8 | CAM 25 | CAM 26 | CAM 16 | CAM 15

ROB 24 | ROB 26 | ROB 23 | ROB 25 | ROB 27 | ROB 28 | ROB 29 | ROB 30

ZONE IV

ZONE V

L-40N
L-32N
L-24N
L-16N
L-8N
L-0
L-8S
L-16S
L-24S

100E AS SCALED FROM 118E
110E
120E
130E
140E
150E
160E
170E
180E
190E
200E
210E
220E

LEGEND

ELECTRODE CONFIGURATION ..... 3 ARRAY
ELECTRODE SPACING ..... 400'
CONTOUR INTERVAL ..... 1·0 MILLISECONDS
INDEX CONTOUR .....
INTERMEDIATE CONTOUR .....

SCALE
1 INCH = 400 FEET

N
(APPROX)

INDUCED POLARIZATION SURVEY

CHARGEABILITY CONTOUR PLAN

BRENDA LAKE AREA, B.C.

ROB, CAM, VISCOUNT & MARN GROUPS

FOR

KEL GLEN MINES LTD

BY

CANADIAN AERO Mineral Surveys LTD.
OTTAWA & TORONTO ONT, CANADA

875

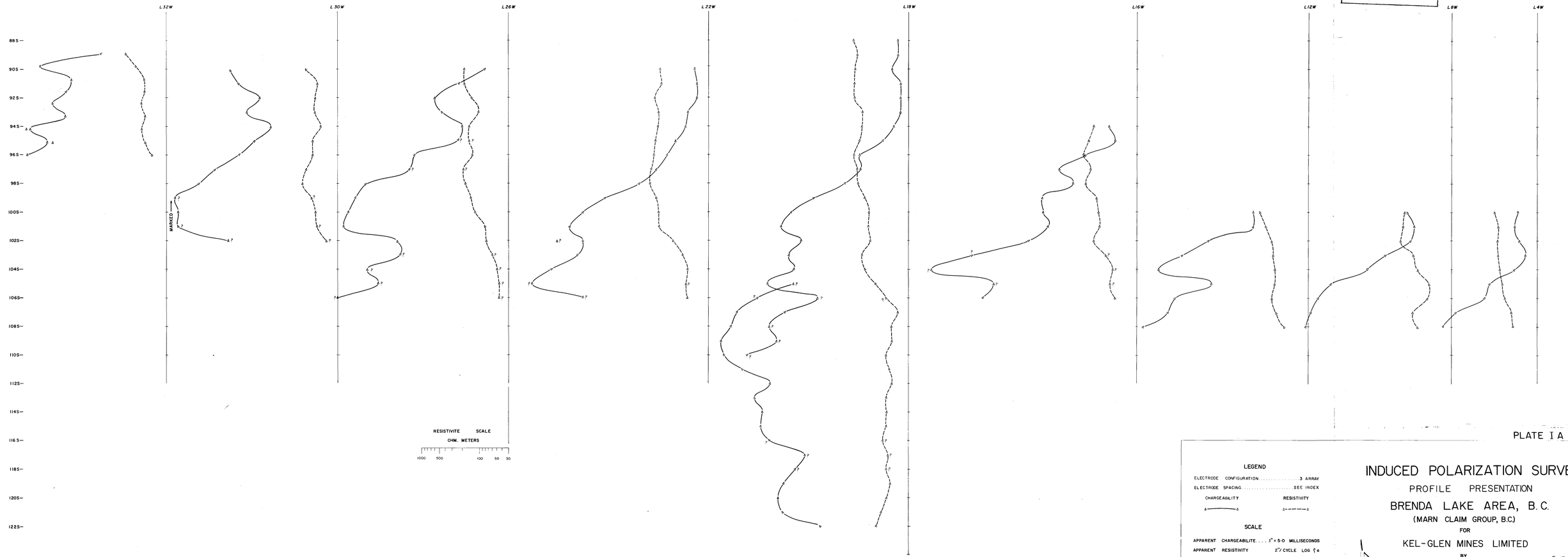

PLATE I A

LEGEND

ELECTRODE CONFIGURATION ..... 3 ARRAY

ELECTRODE SPACING ..... SEE INDEX

CHARGEABILITY — RESISTIVITY

SCALE

APPARENT CHARGEABILITY .... 3" = 5·0 MILLISECONDS

APPARENT RESISTIVITY ..... 2" / CYCLE LOG ρ_a

SCALE ..... 1 INCH = 200'

(NOTE : LINES NOT SPACED TO SCALE)

INDUCED POLARIZATION SURVEY

PROFILE PRESENTATION

BRENDA LAKE AREA, B. C.

(MARN CLAIM GROUP, B.C.)

FOR

KEL-GLEN MINES LIMITED

BY

CANADIAN AERO Mineral Surveys LTD OTTAWA & TORONTO ONT., CANADA

3 PARTS

875

(APPROX)

875

C.A.M.S. 7010

L.88S

L.96S

L.104S

L.112S

L.120S

42W 40W 38W 36W 34W 32W 30W 28W 26W 24W 22W 20W 18W 16W 14W 12W 10W 8W 6W 4W 2W

L.152S

L.160S

L.168S

L.176S

L.184S

44·2

L.192S

32W 30W 28W 26W 24W 22W 20W 18W 16W 14W 12W 10W 8W 6W 4W 2W

INDUCED POLARIZATION SURVEY

PROFILE PRESENTATION

BRENDA LAKE AREA, B.C.

(MARN CLAIM GROUP, B.C.)

FOR

KEL-GLEN MINES LIMITED

BY

CANADIAN AERO Mineral Surveys LTD.
OTTAWA & TORONTO ONTARIO, CANADA

(APPROX.)

LEGEND

ELECTRODE CONFIGURATION . . . . . 3 ARRAY
ELECTRODE SPACING . . . . . 200'

CHARGEABILY — RESISTIVITY ρa

SCALE

APPARENT CHARGEABILITY. . . . 1" = 5·0 MILLISECONDS
APPARENT RESISTIVITY 2"/ CYCLE LOG. ρa

SCALE. . . . 1 INCH = 200'
(NOTE: LINES NOT SPACED TO SCALE)

875

PLATE 1(B)

C.A.M.S. 7011

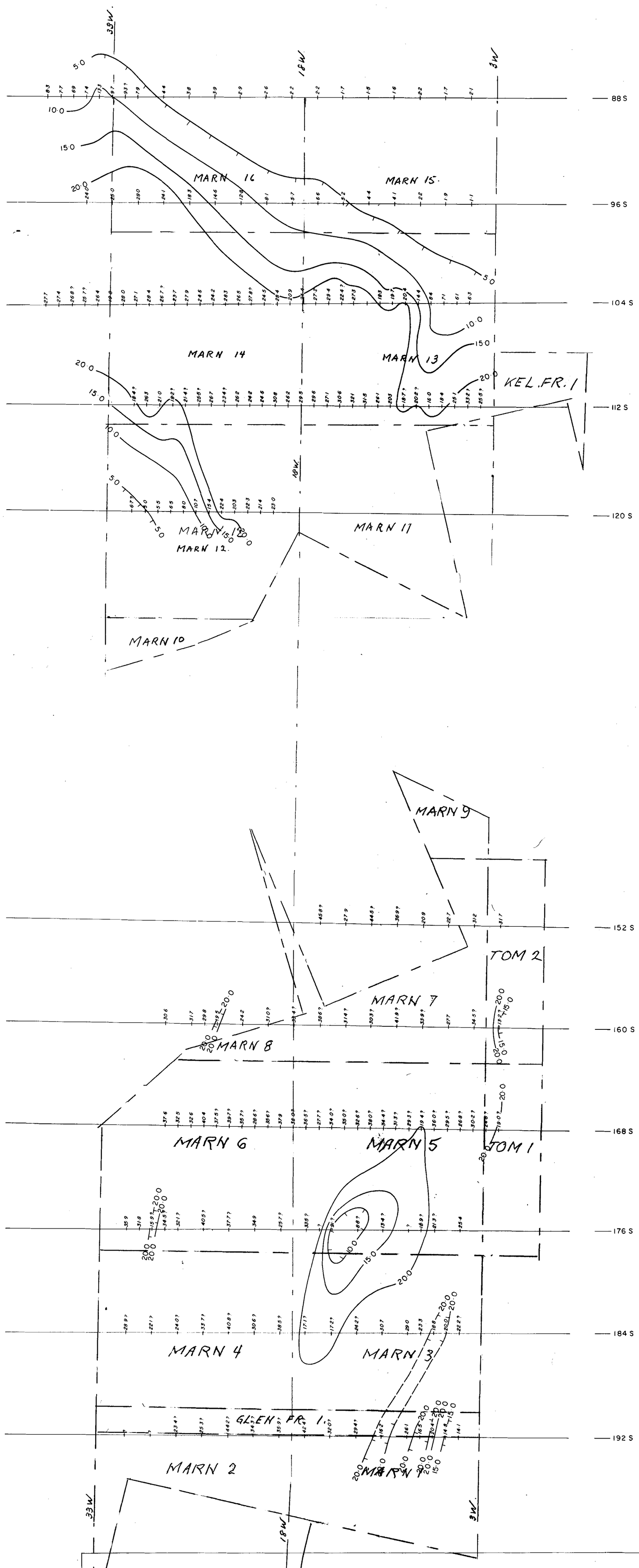

PLATE II B

LEGEND

ELECTRODE CONFIGURATION ..... 3 ARRAY
ELECTRODE SPACING ..... 400'
CONTOUR INTERVAL ..... 5.0 MILLISECONDS

SCALE

1 INCH = 200 FEET

(APPROX.)

INDUCED POLARIZATION SURVEY

CHARGEABILITY CONTOUR PLAN

BRENDA LAKE AREA, B.C.

(MARN CLAIM GROUP, B.C.)

FOR

KEL-GLEN MINES LIMITED

BY

CANADIAN AERO Mineral Surveys LTD.
OTTAWA, ONTARIO CANADA

875

Report on Geological work done for Kel-Glen Mines Ltd. (N.P.L.) Brenda Lake area, Nicola Mining Division, B.C. Lat49° 57' N Long 120° 04' W by Everett J. Lees

MARN - # 1 to 29, 31, 33, 35 and 37

ROB - # 1 to 8, 11, 12, and 15 to 30

CAM - # 1 to 8, 11 to 14, 16, 18 and 20 to 26

VISC - # 1 to 6

BOB - # 1 and 2

TOM - # 1 and 2

KEL-FR. - # 1

GLEN-FR. - # 1

3 parts

92 H/16E

875

PART 2 OF 3