

1034

REPORT ON
INDUCED POLARIZATION TEST SURVEY
IN THE
QUELCHENA CREEK AREA
FOR *921/2E*
ADEN MINES LIMITED
BY *4901200NW*
CANADIAN AERO MINERAL SURVEYS LIMITED
Project No. 6038

REPORT ON
INDUCED POLARIZATION TEST SURVEY

IN THE
QUELCHENA CREEK AREA

FOR

ADEN MINES LIMITED

BY

CANADIAN AERO MINERAL SURVEYS LIMITED

Project No. 6088.

OTTAWA, Ontario,
June 16, 1966.

P. Norgaard, P.Eng.,
Geophysicist.

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in Overvoltage Surveying:

by: Robert W. Baldwin

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S U M M A R Y

In the period from May 3 to May 14, 1966, an induced polarization test survey was carried out by Canadian Aero Mineral Surveys Limited on behalf of Aden Mines Limited over part of the "Aden Group" of claims located on Quetchena Creek ^{SE} south of Merritt, British Columbia.

Several zones of anomalous polarization characteristics were indicated. Polarizable material of a concentration of 1% - 3% average by volume at depths less than 100 feet is suggested as the source material.

Induced polarization is an excellent exploration tool for the type of mineralization encountered in this area. Extremely low apparent resistivities and surface conditions that usually are very dry warrant the use of high powered IP equipment for exploration employing electrode spacings greater than 200 feet.

REPORT ON
INDUCED POLARIZATION TEST SURVEY
IN THE
QUELCHENA CREEK AREA
FOR
ADEN MINES LTD.

I. INTRODUCTION

In the period from May 3 to May 14, 1966, an induced polarization test survey was carried out by Canadian Aero Mineral Surveys Limited on behalf of Aden Mines Limited over part of the "Aden Group" of claims located on Quelchena Creek, south of Merritt, B.C. A total of about 10 miles of line was covered including some detailing.

The purpose of the test survey was to establish the applicability of induced polarization as an exploration tool in the search for the type of mineralization found on this property. Complications were expected because of anticipated low apparent resistivities and very dry surface conditions.

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. A reprint of the paper entitled "A Decade of Development in Overvoltage Surveying" by Robert W. Baldwin, which is attached to this report, describes the phenomena involved and the methods of measurement and interpretation of this type of survey.

At each observation point both the primary and secondary voltages are measured. The primary voltages (steady state voltages) are converted by formula to apparent resistivities in units of ohm meters. The secondary voltages (polarization voltages) are measured by integration and then divided by the corresponding primary voltages to obtain the apparent "chargeability", the resulting polarization property characteristics of the region. It is expressed in units of milliseconds or millivolt seconds per volt.

The chief application of induced polarization is in the direct detection of disseminated metallic sulphides. However, any transition in conduction from ionic to electronic and vice versa, will give rise to IP effects. For this reason, all metallic conducting sulphides, including pyrite, pyrrhotite, chalcopyrite and chalcocite etc., and arsenides will be detectable as well as graphite. The latter may be expected to occur primarily in carbonaceous shales and limestones. Occasionally, abnormal IP effects may be experienced from magnetite concentrations and from serpentines. There is no way at present in which IP effects from any one of these sources can be differentiated from those arising from any of the others using the IP data alone.

Throughout the survey a standard, equispaced three-electrode array was used employing electrode spacings of 200 feet for the reconnaissance coverage. In three locations some detailing was attempted using electrode spacings of 100 feet and 50 feet in traversing zones of interest.

The test survey consisted of the coverage of 6 parallel 3000 foot lines spaced at 800 foot intervals. Readings were normally taken along the lines at 200 foot intervals with 100 foot reading intervals over most anomalous zones.

II. DISCUSSION OF RESULTS

The results of the induced polarization survey are presented in profile form on plate 1 at the following scales: 1" = 5.0 milliseconds for the apparent chargeability, 2" = (10 - 100 logarithmic) ohm meters for apparent resistivity and 1" = 400 feet. For the sake of clarity of presentation, the profiles are not spaced to scale.

The apparent chargeability results obtained using an electrode spacing of 200 feet are also presented in plan form on plate 2. Considering that a large line spacing of 800 feet was used with a relatively small electrode spacing of 200 feet, actual contouring of the results is not considered justified. However, zones of higher than normal polarization responses have been outlined on the chargeability plan.

The normal background chargeability response for unmineralized rocks in this area appears to be in the order of 1.0 - 2.0 milliseconds. Polarization responses of 4.0 milliseconds and greater can therefore be considered anomalous.

Several zones of higher than normal polarization characteristics were noted east of Quelchena Creek presumably within the granitic intrusive. Peak responses are in the order of 7.0 - 10.0 milliseconds. Some detailed work was carried out on zone 1 on line 0+00 and on line 8+00 South. A maximum chargeability response of 9.5 milliseconds on line 0+00 at 16 + 50 East suggests source material of a concentration of 1% - 2% average by volume. The depth to the polarizable material in this zone appears to be less than 50 feet.

Detailing of zone 2 on line 0+00 indicates the source material (1%-2%) to be of a depth of approximately 60 feet at 38+00 East.

No detailed work in the form of traverses using electrode spacings other than 200 feet was carried out on the other two zones indicated on the grid east of the creek.

West of Quelchena Creek in the volcanics of the Nicola Series abnormal polarization characteristics were obtained in an area of extremely low apparent resistivities (50-60 ohm meters). There is some doubt as to the accuracy of the readings obtained on line 0+00 over this zone. Primary voltages here were at times so

low in magnitude that they could not be accurately measured. Detailed work over this zone on line 24 South in the form of a traverse using an electrode spacing of 100 feet suggests 1% - 3% average by volume of polarizable material at a depth of approximately 80 - 100 feet at 38W.

III. CONCLUSIONS

The induced polarization test survey was successful in that it establishes the fact that in this large area of widespread mineralization, IP can indeed be used in locating concentrations of metallic sulphides.

Apparent resistivities are very low in the area covered by the survey and it is certain that high powered equipment is required in order to successfully explore with electrode spacings greater than 200 feet, especially in the region of the volcanics.

Indications of metallic sulphides were noted in the area of the anomalous zones located east of Quelchena Creek, but the surface mineralization was mostly pyrite. The anomalous zone west of the creek is in an area of overburden and apparently does not have any exposures indicating the type of source material responsible for the anomaly.

Respectfully submitted,



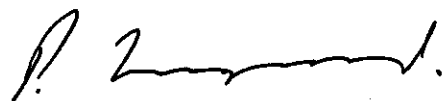
Peer Morgeard, P. Eng.,
Geophysicist.

OTTAWA, Ontario,
June 16, 1966.

APPENDIX II

The following is a list of the personnel engaged in the work necessary to complete the induced polarization survey.

<u>NAME AND ADDRESS</u>	<u>MAN DAYS</u>
John Irvine, geophysicist Okanagan Landing B. C.	12
Peer Norgaard, geophysicist Ottawa, Ontario	2
Claude Desy, helper Lower Nicola B.C.	1/2
Ron Sanders, helper Lower Nicola, B. C.	10
Brian Finley, helper Merritt, B. C.	10
Norman Neale, helper Lower Nicola, B. C.	9 1/2
TOTAL	<hr/> 44


P. Norgaard, P. Eng.,
Geophysicist.

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 AIRPORT
 CASABAY, ALTA.

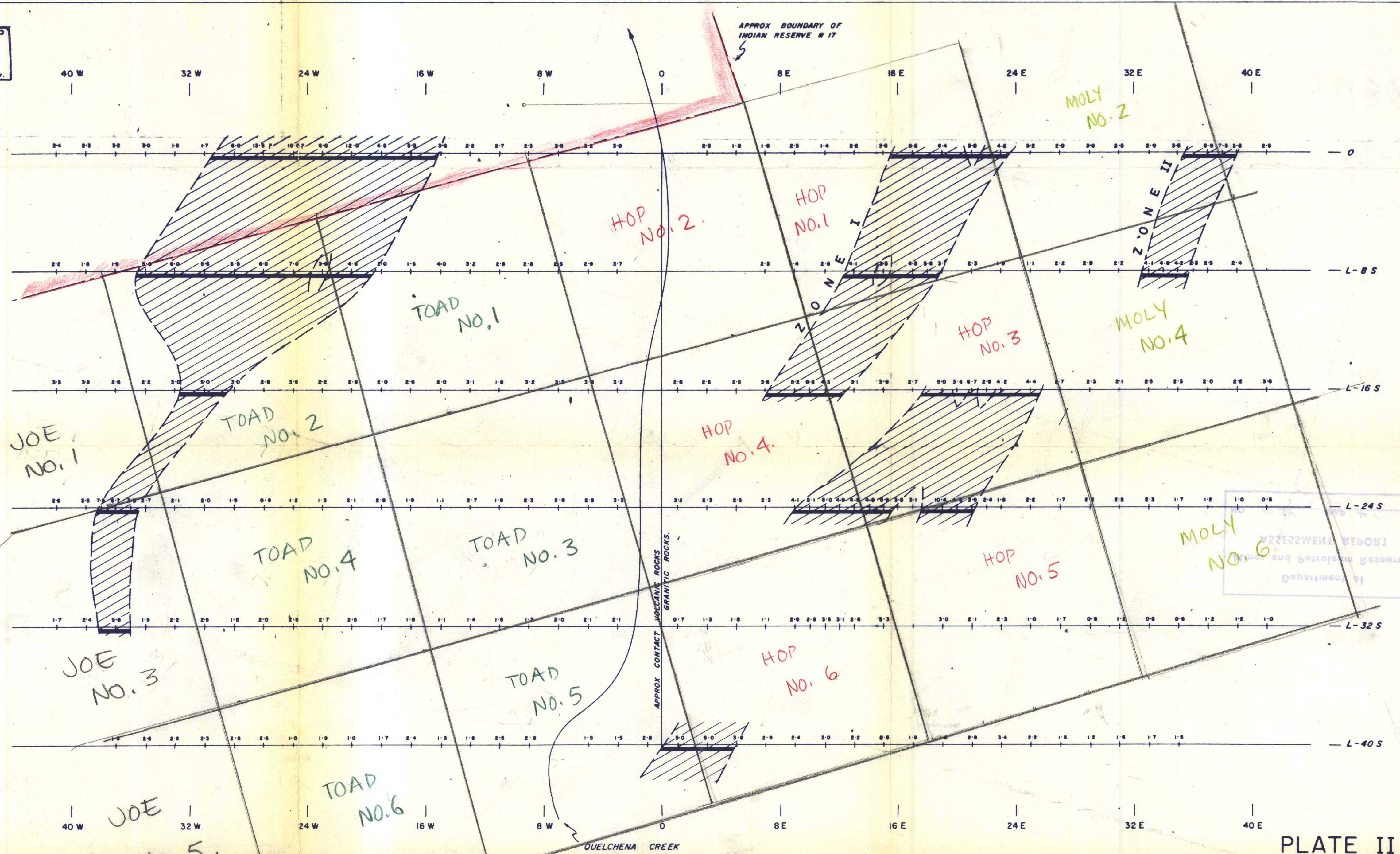


PLATE II

APPROXIMATE
 MINERAL CLAIM
 BOUNDARIES

LEGEND
 ELECTRODE CONFIGURATION..... 3 ARRAY
 ELECTRODE SPACING..... 200 FEET

ANOMALOUS ZONE

SCALE
 SCALE..... 1 INCH = 400'



(APPROX.)

INDUCED POLARIZATION TEST SURVEY
 CHARGEABILITY CONTOUR PLAN
 QUELCHENA CREEK AREA, B.C.

FOR
 ADEN MINES LIMITED 1034

BY
 CANADIAN AERO Mineral Survey LTD.
 OTTAWA & TORONTO ONT, CANADA

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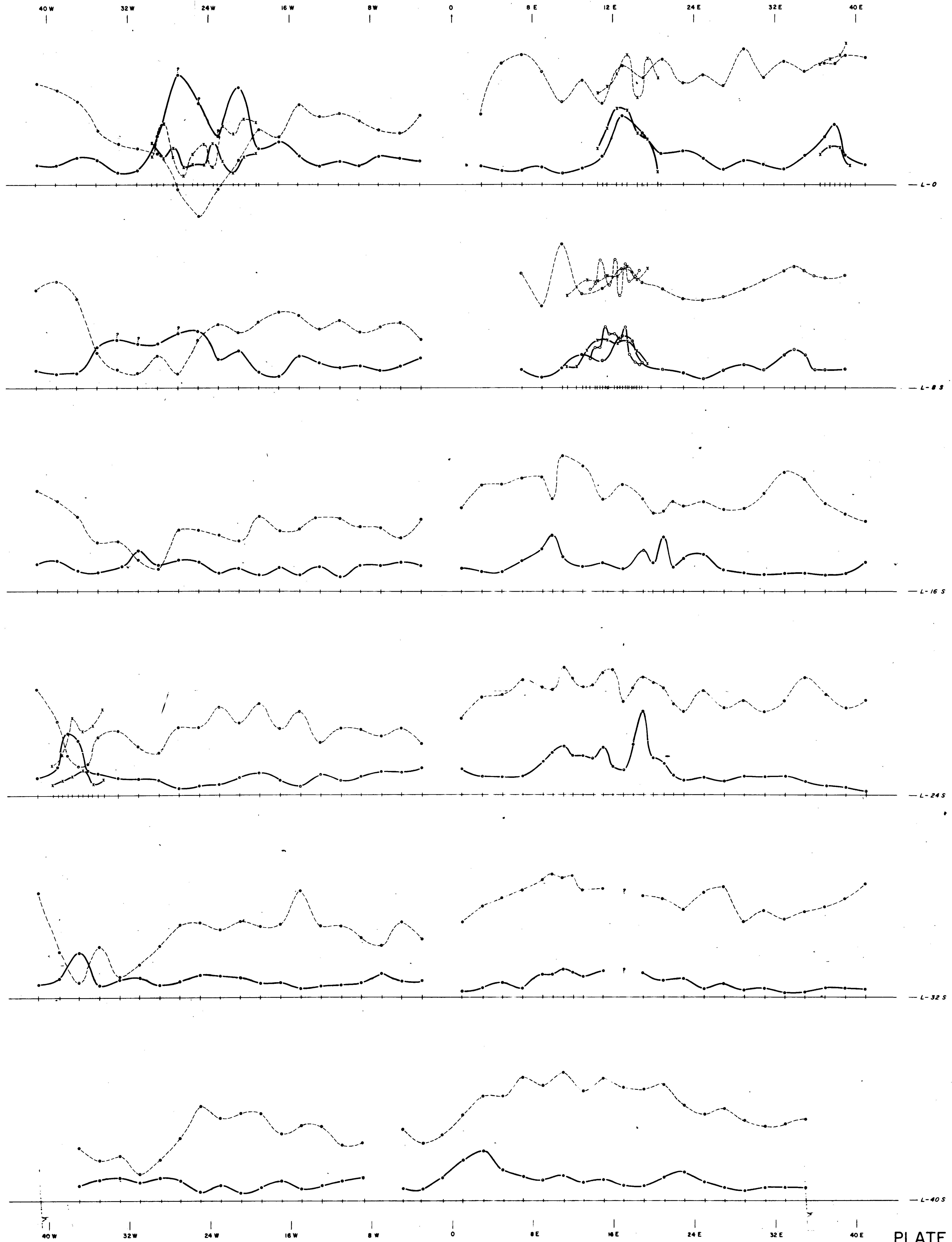


PLATE I

LEGEND

ELECTRODE CONFIGURATION..... 3 ARRAY

ELECTRODE SPACING..... SEE INDEX

CHARGEABILITY..... RESISTIVITY

○..... 50'

×..... 100'

●..... 200'

SCALE

APPARENT CHARGEABILITY..... 1" = 5.0 MILLISECONDS

APPARENT RESISTIVITY..... 2" / CYCLE LOG P =

SCALE..... 1" = 400'

(NOTE LINES NOT SPACED TO SCALE)

INDUCED POLARIZATION SURVEY
PROFILE PRESENTATION
QUELCHENA CREEK AREA, B.C.

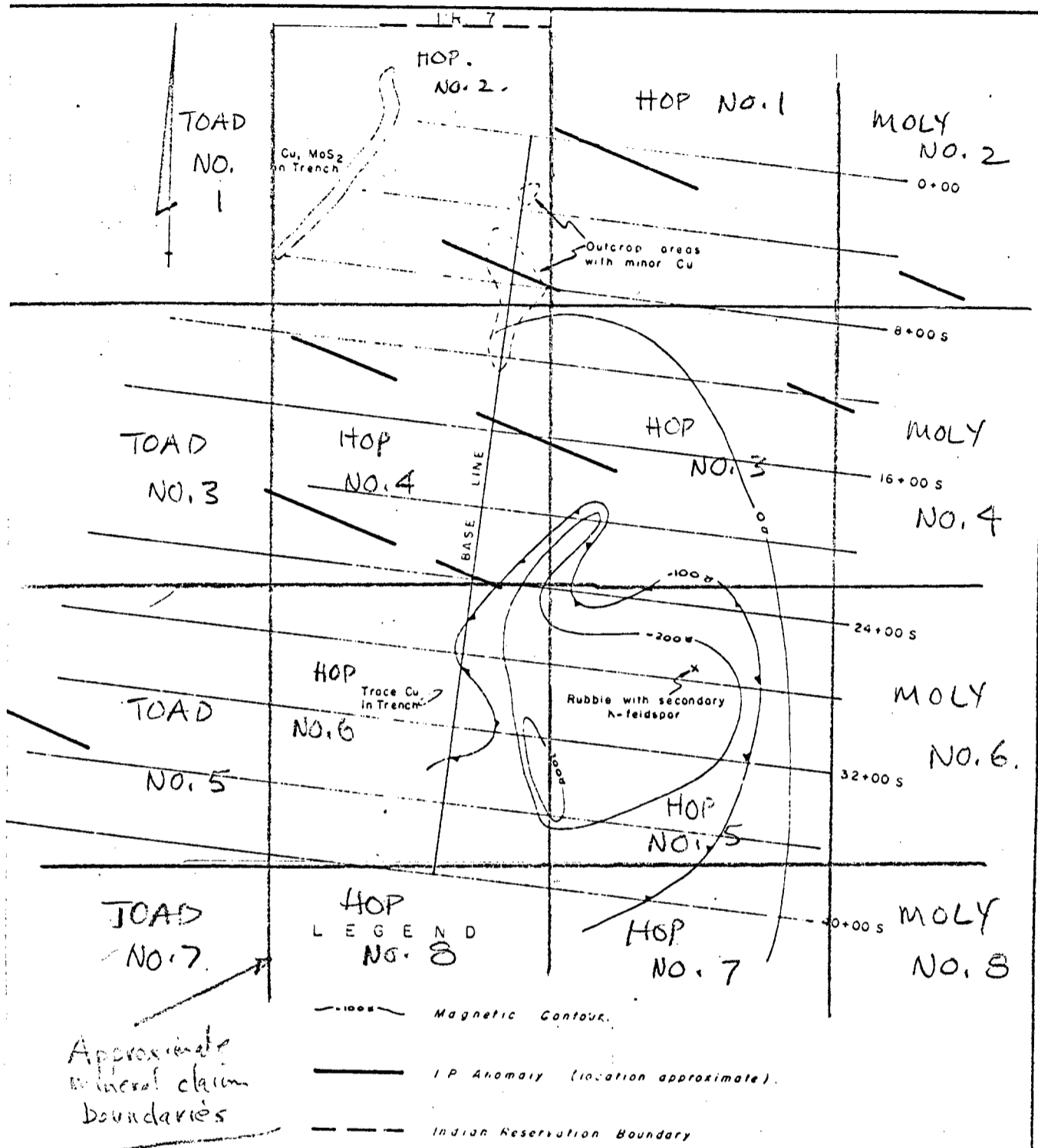
FOR
ADEN MINES LIMITED 1034

BY
 CANADIAN AERO *Mineral Survey* LTD.
 OTTAWA & TORONTO
 ONT. CANADA



(APPROX.)

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AMAX EXPLORATION INC.

ADEN MINES LIMITED
NICOLA M.D. — B.C.

MAGNETOMETER AND I. P. MAP

SCALE 1" = 800'

Vancouver —

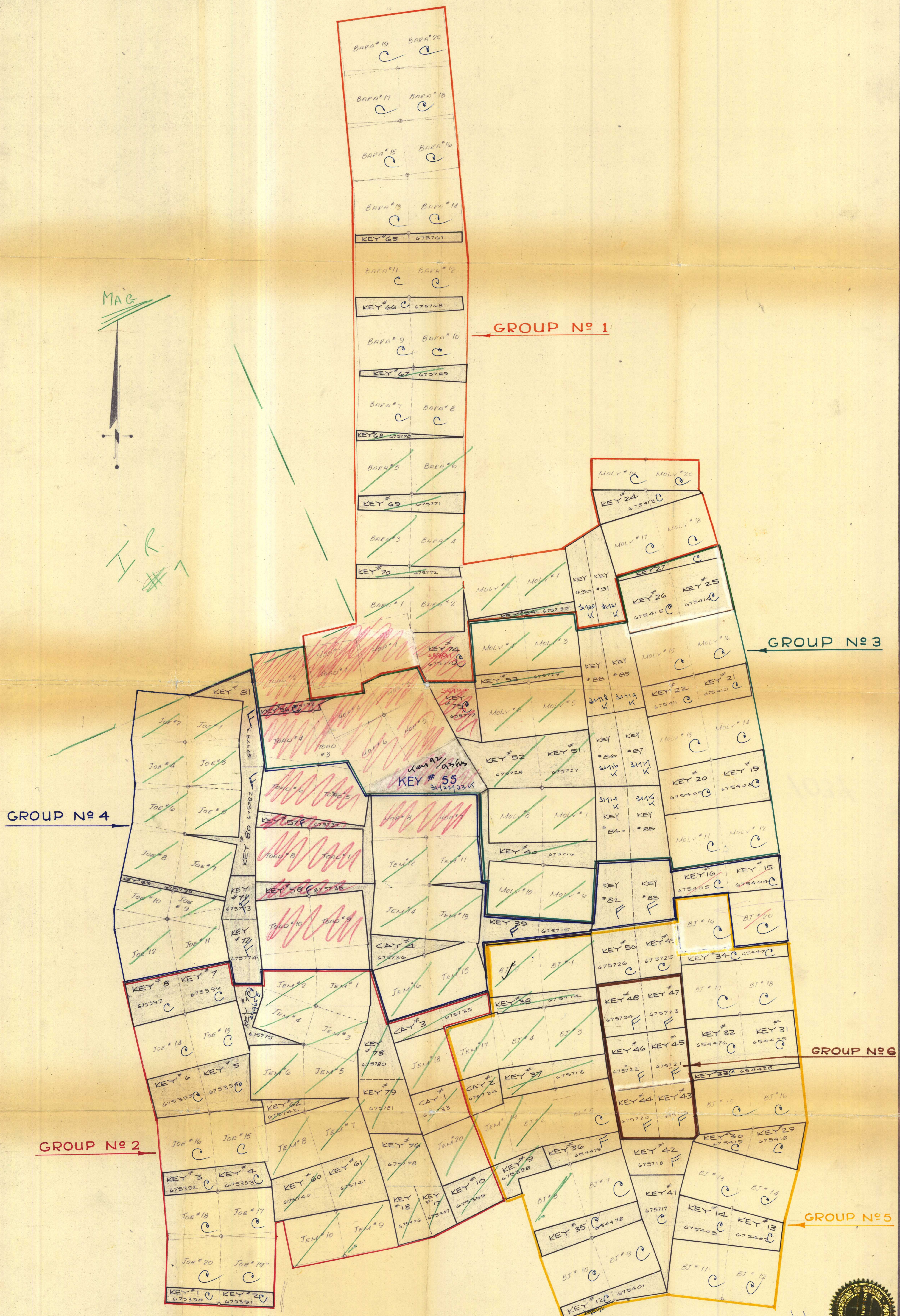
H.P.

92 I 2 FIG. 5

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 1034 MAP #3

PLAN SHOWING FRACTIONAL CLAIMS, ADEN MINES

SCALE: 1 INCH = 1000 FEET



GROUP NO 4

GROUP NO 1

GROUP NO 3

GROUP NO 6

GROUP NO 2

GROUP NO 5

Plan 921 2E

ABANDONED 6-2-68

ABANDONED 16-6-68

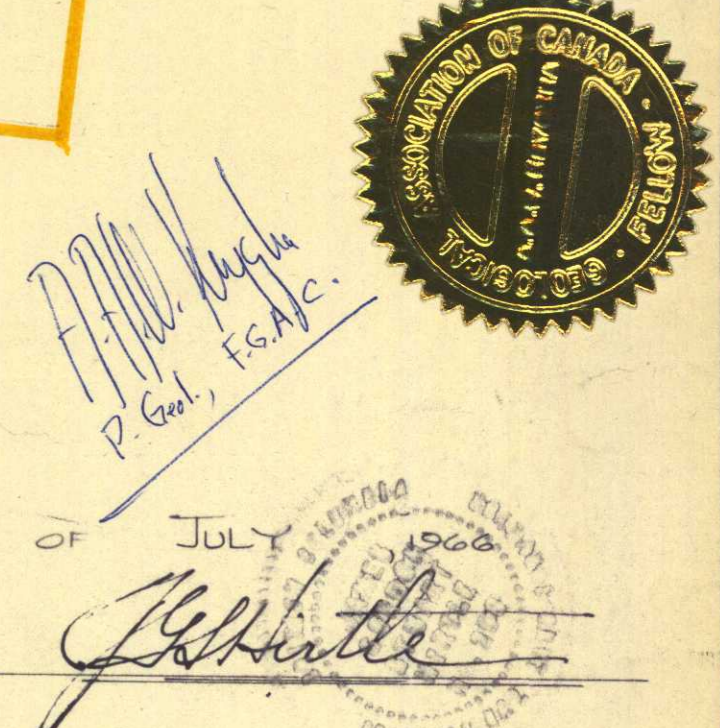
For Sale Jan - June 68
1967

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REVISED TO INCLUDE CLAIMS KEY #82 TO KEY #91 INCLUSIVE. THIS 3RD DAY OF NOVEMBER 1966

CERTIFIED CORRECT THIS 11th DAY OF JULY 1966



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INTERIOR ENGINEERING SERVICES LTD. 1470 WATER ST. KELLOWNA, B.C.

Attach to 1034