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Enclosed Maps

A. Claim and Geophysical Survey Location Map — Scale 1" = 500' — 338-1

B. Induced Polarization Profile Map — Scale 1" = 400' — 338-2

C. Resistivity Profile Map — Scale 1" = 400' — 338-3

CLAIMS

The eight claims covered by this geophysical report have been grouped into the Ann Group and are part of the holdings of Salmo Prince Mines Ltd. They are situated in the Highland Valley area of the Kamloops Mining Division approximately 5 miles northeast of Divide Lake. The individual claims are as follows:

Ann Group

Ann 3	Tag No. 217751	Record	No.	23539
Ann 4	Tag No. 217752	"	"	23540
Ann 5	Tag No. 217753	"	"	23541
Ann 6	Tag No. 217754	"	"	23542
Ann 7	Tag No. 217755	"	"	23543
Ann 8	Tag No. 217756	"	"	23544
Rover 1	Tag No. 368801	"	"	33054
Rover 2	Tag No. 368802	"	"	33055

Expenditures

The Induced Polarization and Resistivity equipment requires a qualified geophysicist, foreman and three labourers for operation. The survey also requires clean, accurately picketed lines. The following personnel, at indicated pay rates, were employed on this survey.

J. B. Boniwell and N. G. Mattocks Graduate geophysicists in charge of survey			$ 35.00/day
W. Rorison	- foreman	$ 15.00/day	
J. Ellefsen	- labourer	15.00/day	
G. Halbert	- labourer	14.00/day	
A. MacDougal	- labourer	12.00/day	
			56.00/day

Supervision

L. B. Gatenby, P.Eng. (half allowable $35.00/day)	17.50/day

Miscellaneous

Unemployment Insurance and Workmen's Compensation	6.00/day
Instrument maintenance	20.00/day
Vehicle costs	10.00/day
Total direct cost	$ 144.50/day

Using a 300' spaced 3 pole array at 100' stations and including line cleaning and picketing an average survey advance of 2,200 feet per day was obtained excluding major equipment breakdowns and unfavourable weather conditions. This gives a cost of 6.5¢ per linear foot of surveyed line. The work was done from June 3rd to 10th, 1960.

The following is the Induced Polarization and Resistivity survey footage and expenditure on the claim group.

Ann Group

Eight claims with total footage = 12,400'

Cost = 12,400 x 6.5¢ = $ 806.00

Signed L. B. Gatenby, P.Eng.

APPENDIX

THE INDUCED POLARIZATION PHENOMENON AND METHOD

When an electrical field is applied to the ground, current is passed by virtue of the normal electrolytic properties of rocks in situ. However, metallic particles, such as sulphides, conduct electronically, and their presence in a rock mass materially affects current behaviour. At the interfaces between metallic and non-metallic materials, a resistance to current passage has been observed (the so-called "over-voltage" phenomenon), which, in effect, is analogous to a condenser action. Due to the influence of the applied field, an ionic movement, not clearly understood, causes a polarization of charges at the interface which builds up with time. On interruption of the primary current, these ions revert to their previous balance, thereby producing a discharge of a small transient or secondary voltage. A measurement of this voltage decay provides a means to detect the presence of metallic particles, and through interpretation, to arrive at a quantitative estimate.

It is possible to measure the polarization effect in two ways: either collect the discharge voltage as a function of time, and measure it direct in millvolt-second units, or observe, in a volume earth, the change of apparent resistivity with the frequency of the applied alternating field. The latter approach relies upon the fact that the electrical impedance of a circuit that can be polarized is dependent upon the frequency of the measuring current.

In the present survey, the measuring is accomplished in the first, or time domain. Theory, procedures, and the actual field unit used have been developed by Dr. H. O. Seigel of Toronto. As the secondary voltage is also directly proportional to the magnitude of the applied current, results are presented as a ratio of secondary to primary voltages, that is, millivolt-seconds : volts, giving to the polarization effect a millisecond unit. This parameter, VS/VP, is often referred to as the "chargeability", and is given the symbol 'm'.

Field practice revolves about four grounded electrodes, two introducing current to the ground and two providing the reference points between which the voltage measurements are made. The latter need to be of the non-polarizing type, and porous pots are used. Several electrode arrays are possible, each with its own advantages and disadvantages. To generalize, and given a sufficient power supply with respect to ground resistivities, it is normally desirable to operate with a two-or three-electrode line array, with the remaining electrode(s) at electrical infinity. These arrays, as distinct from the more classic four-electrode Wenner array, provide a higher degree of resolution and a greater depth penetration in terms of electrode spacing. For reconnaissance traversing, the line electrodes move in unison, the spacing between them remaining equal and fixed. The selection of the array and the spacing is governed, not only by the obvious need to cater to the size, depth and composition of the target body, but also by the depth of overburden and the range of ground resistivities expected.

A by-product of the polarization measurement is data sufficient for the determination of apparent resistivity. This auxiliary value is often informative, if not actually diagnostic to the polarization effect. It often provides evidence of bedrock relief, and, as might be expected, of resistivity contrasts distinctive to areas of anomalous polarization. Commonly, a resistivity low accompanies a polarization high, but it is not unusual in cases of intense silicification, to have a resistivity high in correlation with a polarization anomaly.

Results are plotted in profile form. Contouring, apart from major anomalies, is not normally attempted, as it is considered, too many spurious and unrealistic events would be thus emphasized. Varying conditions of near-surface conductivities, contact resistances and natural earth currents provide room for false measurements and rough profiles. All these factors are carefully monitored, but not necessarily entirely eliminated. Further, as all rocks exhibit polarization effects, even when totally lacking sulphides, there is a background level which itself varies.

Polarization indications are not necessarily due to sulphides. For example, magnetite, graphite and certain clay minerals can also give rise to appreciable anomalies. Discrimination of the first can be readily accomplished by use of the magnetometer, the latter not so certainly by resorting to expanding arrays and local geologic knowledge. And as a final note, it should be pointed out that the induced polarization method is most effective in detecting moderately disseminated sulphide incidences, that with increasing concentrations a critical point is reached beyond which effectiveness decreases. In fact, optimum efficiency has been shown to exist when the disturbing body is just twice as conductive as its surroundings.

November 28th, 1960. J. B. Boniwell.

GEOPHYSICAL RESULTS

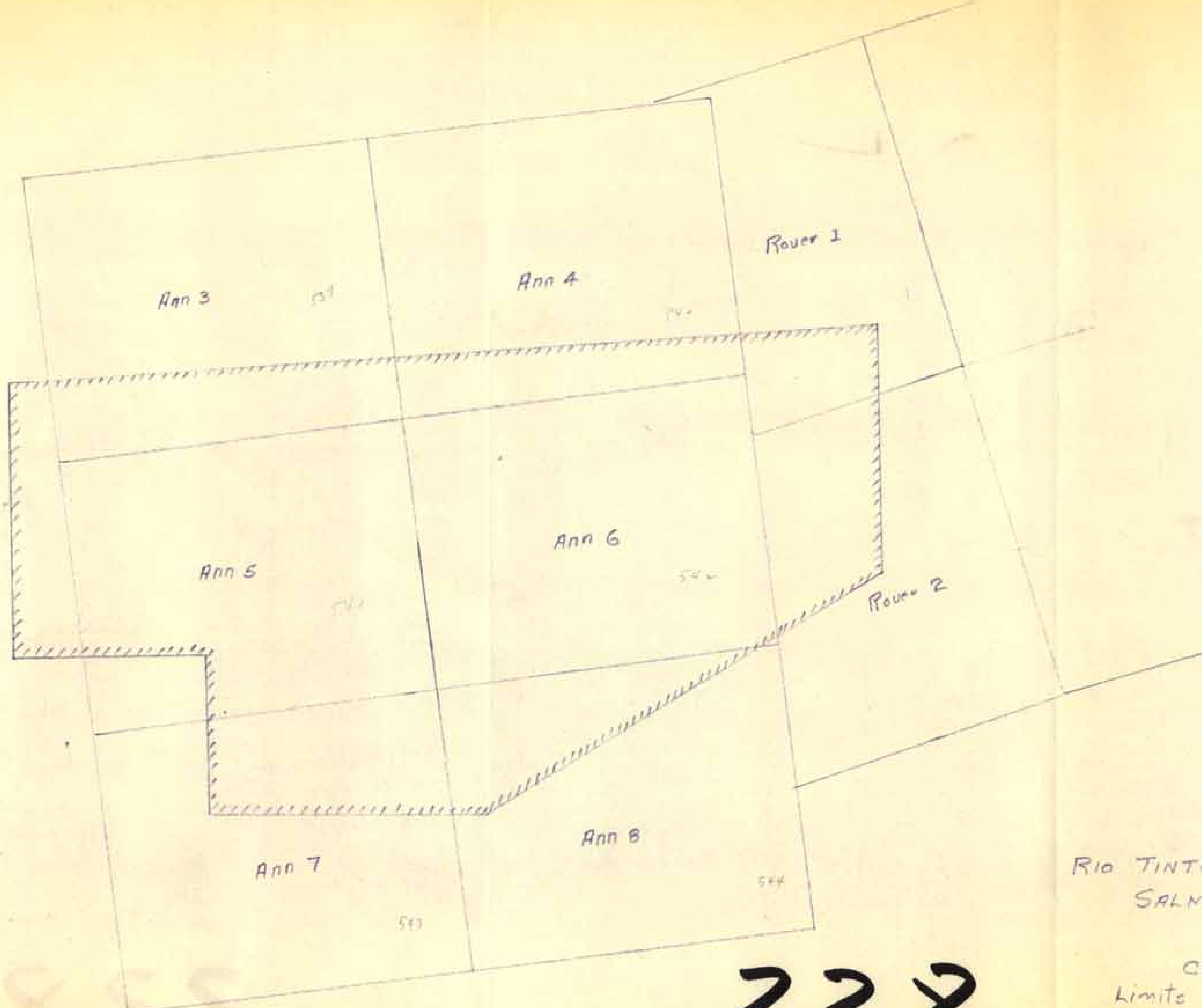
To allow adequate coverage of the possibilities presented by the Salmo Prince workings and by the adjacent areas of basalt cover, induced polarization surveys were extended east from the Krain property. As there, a three-electrode array, spaced equally at 300' and with the current electrode leading west, was employed. Measurements of chargeability and apparent resistivity are shown plotted midway between the current and nearest potential electrode in the accompanying plans. In all, some 2.5 line miles of I.P. survey are thus shown in profile.

In an appendix, a more detailed description of the induced polarization method is given. It will be seen that the area of low resistivity over the basalt cover has caused some erratic chargeability readings which can be given no significance. In the vicinity of the workings, because of the considerably higher resistivity level, results, in contrast, are reliable. Thus, it is clear that no distinct responses can be identified with the exposed copper zones in the trenches. The immediate inference is that either no primary sulphides exist below the surface carbonates, or that the mineral incidences are far too local to give rise to appreciable polarization effects. In view of this, little potential was apparent to the surveyed area and no recommendations were made.

November 28, 1960.

J. B. Boniwell.

L. B. Staleuty



N north arrow wrong?

LEGEND

Ann Group of claims – Ann 3 to 8
Rover 1 and 2
Limit of I.P. and Resistivity Survey

RIO TINTO CANADIAN EXPLORATION LTD.
SALMO PRINCE MINES LTD OPTION

MAP SHOWING
Claim Locations and Grouping
Limits of I.P. and Resistivity Surveys
Scale 1" = 500'
January 1961
E. B. Gateley P. Eng.

Map A

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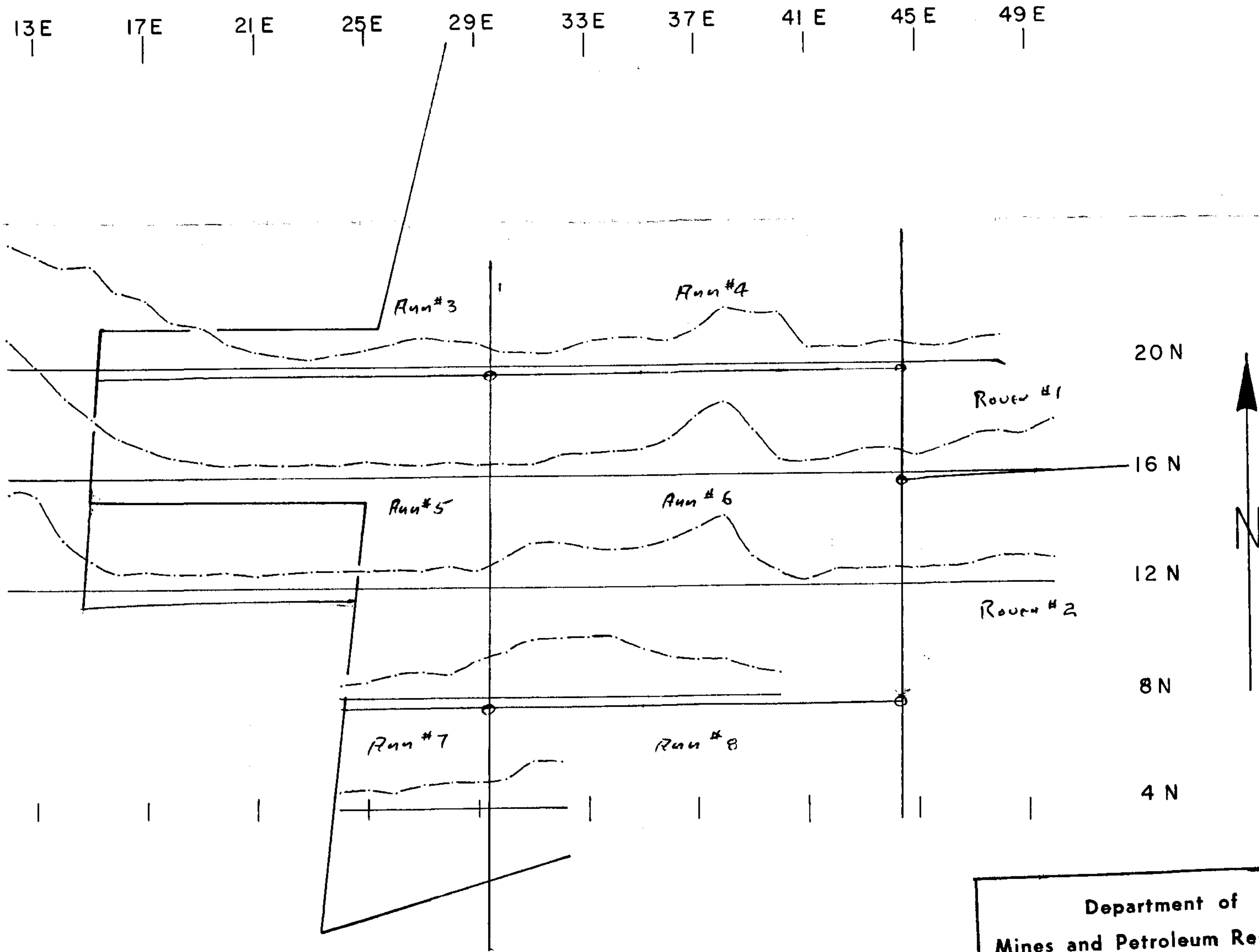

Department of
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ASSESSMENT REPORT
NO. 338 MAP 2

RIO TINTO CANADIAN EXPLORATION LTD.

PROFILES OF APPARENT RESISTIVITY

SALMO PRINCE PROPERTY

HIGHLAND VALLEY, B.C.

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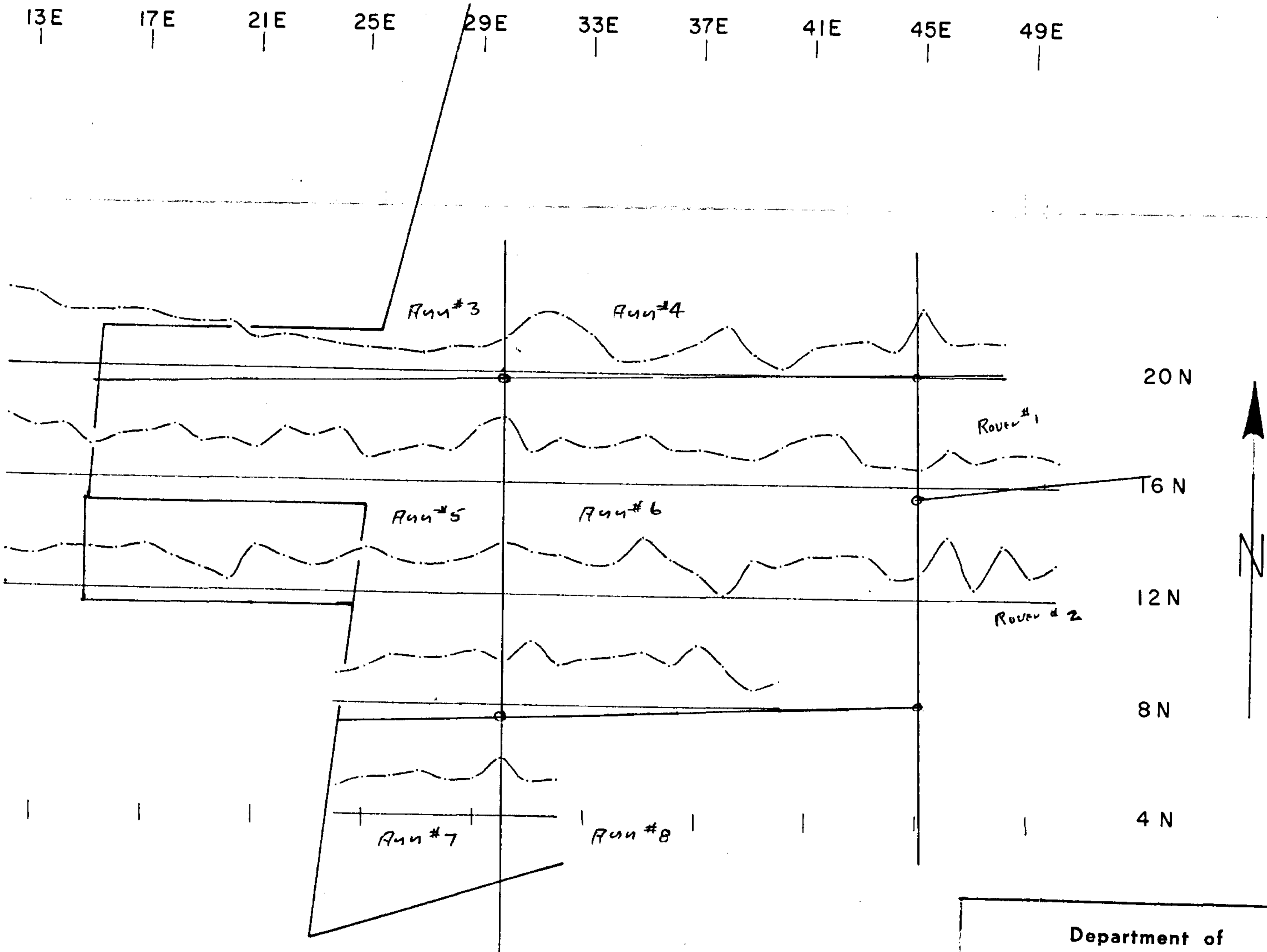
SCALES:
Vertical 1" = 400 ohm-Metres
In Plan 1" = 400'
Nov. 1960 J.B.B.
Electrode Spacing 300'



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 338 MAP 3

RIO TINTO CANADIAN EXPLORATION LTD.

PROFILES OF INDUCED POLARISATION

SALMO PRINCE PROPERTY

HIGHLAND VALLEY, B. C.

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SCALES:

Vertical 1" = 5 Milliseconds ($\frac{VS}{VP}$ X 10^{-3})

in Plan 1" = 400'

Nov. 1960 J.B.B.

Electrode Spacing 300'