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MICROFILMED

GRADIENT INDUCED POLARIZATION SURVEY

SPL-132, MT. DUNDAS

ROSEBERY, TASMANIA

ON BEHALF OF

ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED

OPEN FILE

SYDNEY, N.S.W.

OCTOBER, 1974

TAS-023A

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INTRODUCTION

On the 1st October, 1974, a Scintrex Pty. Ltd. induced polarization crew under the immediate direction of Staff Geophysicist Mr. D. Robson, BSc, executed a gradient induced polarization survey over two lines on SPL-132, Mt. Dundas area, Rosebery, Tasmania. This work was performed at the request of Mr. R. Williams, Senior Geologist, West Coast Mines Ltd., a division of the Electrolytic Zinc Company of Australasia Limited.

The objective of the survey was to define geophysical anomalies located in a survey conducted by Rio Tinto Southern Exploration Pty. Ltd. in surveys carried out in 1960.

Brief notes on the method and techniques employed are appended to this report.

DISCUSSION

The data is presented on Plate 4 at the horizontal scale of

1:2500 with distances expressed in feet. The vertical scales are 1 centimetre = 5 milliseconds for chargeability while the resistivity is shown on a five centimetre log scale and expressed in ohm-metres.

Lines 5200S and 5600S were surveyed using a 4000 feet current dipole placed on line 5600S at 1525E and 2475W and a 50 feet potential dipole.

The co-ordinates of each line are considered to be approximately as those in the 1960 RTZ report at the baseline (00), while 1500W on line 5200S is thought to be equivalent to 1700W on the RTZ survey.

The background resistivities are of the order of 2000 ohm-metres with a range of between 500 ohm-metres to in excess of 4500 ohm-metres. Although the profile forms are similar, in detail it is difficult to correlate the resistivity data between lines. However, the following correlation is suggested, based on apparent resistivity:

5200S	1225W (low)	575W(high)	130E (high)
5600S	1325W (low)	800W(high)	050E (high)

The 1960 gravity data shows a gravity high over the resistive ridge above, indicating a denser, perhaps more basic source.

Induced polarization backgrounds on both lines are high - 30 to 33 milliseconds on line 5600S and 20 to 25 milliseconds on line 5200S. A number of significant anomalies were defined superimposed on this high background, only two of which can be clearly correlated between lines. Immediately to the east of the resistivity high seen at 575W and 800W on lines 5200S and 5600S, a substantial 45 and 25 millisecond anomaly was defined at 500W and 670W respectively. As only very slight (10%) depressions in the resistivity were observed in the vicinity of the highs, the source is not considered to show material conduction. The approximate width of the source is of the order of 50 to 60 feet, and the asymmetry of the profile form suggests a steep to moderate east dip to the source. The maximum depths are of the order of 25 feet. Immediately to the east of this anomaly, a second, less substantial anomaly was recorded at 375W and 475W on line 5200S and 5600S. It is significant that the above anomalies are parallel to the resistivity high. Thus in this section, this is considered to be the strike direction. The 1960 Turam data shows no conduction over this section.

On line 5200S a substantial 15 millisecond response coincident with a 75% reduction in apparent resistivity to 200 ohm-metres, was recorded centred just west of 1200W. The width of the zone is considered to be of the order of 50 feet or less, the maximum depth about 30 feet, while the asymmetry of the induced polarization profile suggests a steep to moderate

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east dip. A small chargeability and resistivity response recorded at 1350W on line 5600S along the presumed strike direction is the probable correlative.

Some 100 feet west of the resistive ridge on line 5600S, a significant induced polarization response of 15 milliseconds was recorded at 925W. The interpreted source is slightly conductive, west dipping, less than 50 feet wide and less than 30 feet deep. This anomaly has no correlative to the north.

The Turam anomalies located in the 1960 survey at 850W and 800W on lines 5200S and 5600S on the RTZ grid appear to place the conductive source in the vicinity of the resistive ridge, which is considered unlikely, although of course possible. It is possible that the relative grid co-ordinates are not as inferred, or more likely, that the Turam survey was carried out by grounded cable technique along the baseline. Although this is not stated, the form of the data presented on plate T676 strongly suggests this. Should this in fact be so, the strongest anomalies will be produced not by induction, as with the Turam loop method, but by galvanic flow through the ground. The anomalies will show the most conductive ground sections, mostly within the overburden or within fault zones. Such anomalies will appear as good conductors such as Anomaly No. 2 in the 1960 RTZ report. It is therefore concluded

that the Turam anomalies located in the 1960 survey are due to galvanic near surface current flow and not related to sulphide conduction.

CONCLUSIONS

1 - The Turam anomalies located on the 1960 RTZ survey are due to galvanic conduction within the overburden or within fault zones, and not inductive conduction within sulphides or graphites. This occurred as a result of the use of a grounded cable method, rather than the more meaningful loop method.

2 - Significant induced polarization responses were recorded as follows:

Line 5200S at 1225W, 500W and perhaps 375W.

Line 5600S at 925W and 675W.

Those underlined represent correlatives, and are the most significant anomalies.

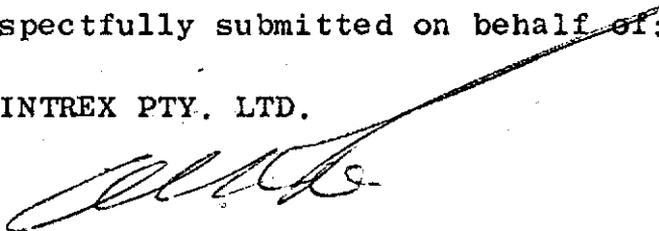
3 - None of the induced polarization responses are conductive in nature, although some very weak conduction has been observed. All the above targets therefore have responses as would be observed over "Hercules" type mineralisation and/or the pyritic horizons observed in that area.

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4 - The geophysical surveys carried out by RTZ in 1960, neither support or detract from the interest of the above anomalies.

Respectfully submitted on behalf of:

SCINTREX PTY. LTD.



A.W. HOWLAND-ROSE, MSc, DIC, AMAusIMM, FGS

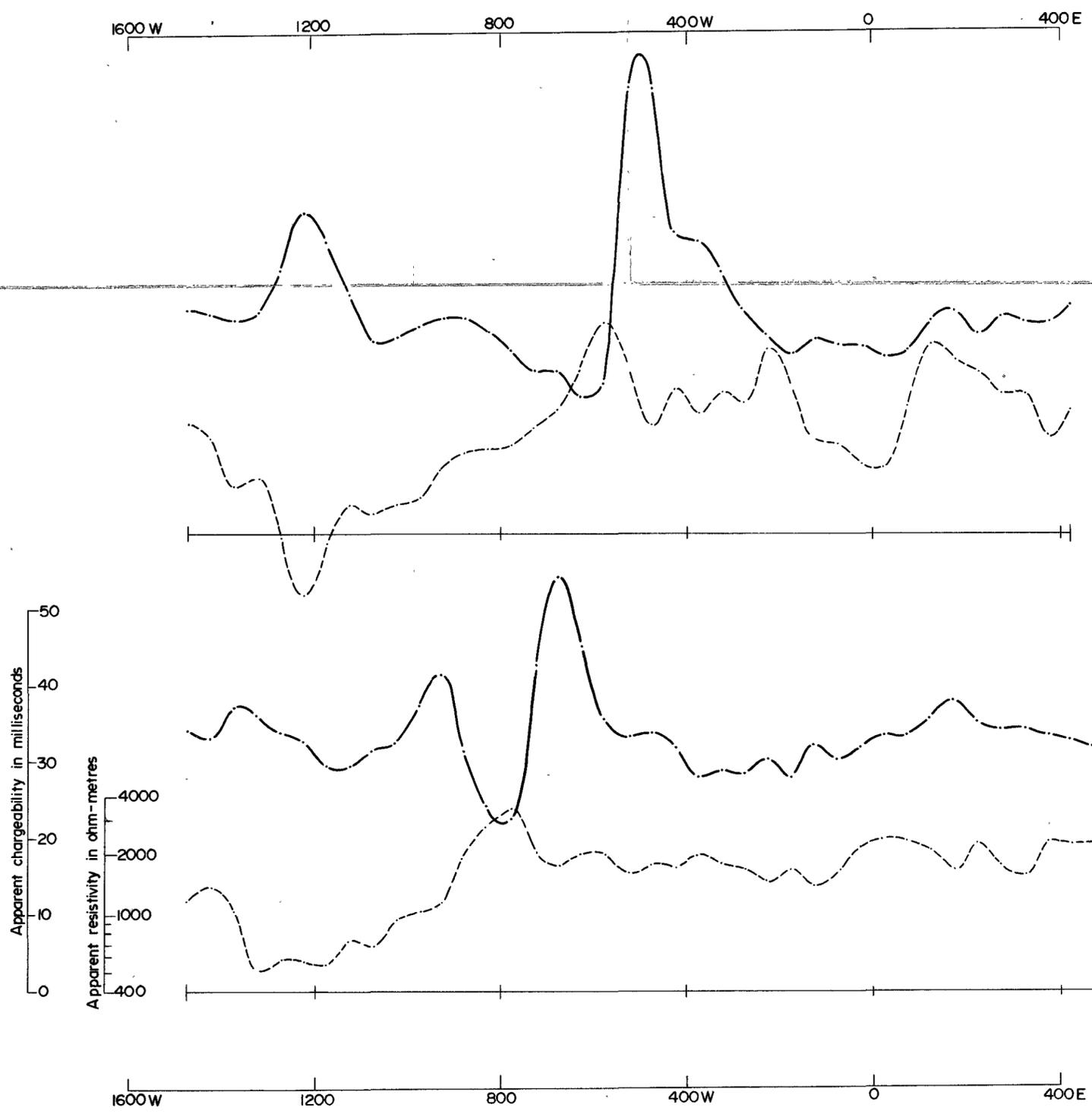
GEOPHYSICIST

LEGEND

CHARGEABILITY SCALE, 2cm. = 10 Milliseconds
 BASE LEVEL = 0 Milliseconds
 SYMBOL = 

RESISTIVITY SCALE, 5cm. = 1 Logarithmic cycle
 BASE LEVEL = 400 Ohm-metres
 SYMBOL = 

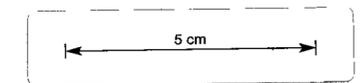
C₁ C₂ = 4000 ft. P₁ P₂ = 50 ft.



ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED

SPL-132 MT. DUNDAS ROSEBERY, TASMANIA

GRADIENT ARRAY ELECTRICAL INDUCED POLARIZATION SURVEY DATA PROFILES

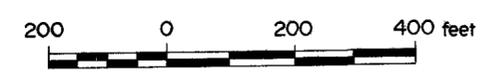


SURVEYED AND COMPILED BY SCINTREX PTY. LTD.

SEPTEMBER 1974



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