REPORT ON RECONNAISSANCE SELF POTENTIAL TRAVERSES IN S.P.L. 72 NEAR SCAMANDER, TASMANIA

for

Scamander Mining Corporation N.L.

by

Jeds Pty. Ltd.

9 September 1970

In S.P.L. 72, held by Scamander Mining Corporation N.L., a number of "gossans" have been mapped. These are shown on a map of Scamander Copper Deposits by Q.J. Henderson, Tasmanian Department of Mines. Prospecting in the area has centred on these "gossans" in an effort to determine whether massive sulphides are associated with them. In at least one locality, the Orieco Prospect, sulphides have been located below gossan outcrop.

Although the method of generation of self potentials by massive sulphides is not completely certain, it is widely held that electro chemical reactions cause potential differences between the sulphide below the water table. The resultant flow of electric current in the surrounding ground can be measured by a high impedance voltmeter and non polarising electrodes. The potentials measured on the surface depend basically on the location of the sulphide (or graphite !) body, and the sulphide concentration which will determine the magnitude of the self potential. The resistivity of the surrounding rock will determine the current flow.

Some preliminary reconnaissance SP (Self Potential) measurements at the Orieco Prospect by the University of Tasmania indicated that the SP technique may assist in the detection of sulphides in this area. Field work was carried out on 25-26 July 1970.

Following discussions with Dr. R. Varne a feconnaissance SP survey was planned to further test the usefulness of the method for investigations in the Scamander area.

The results from four areas are shown on attached figures as listed below.

Orieco Prospect	Figure 1
Orieco Ridge Prospect	2
Ringarooma Bay Prospect	3
North Ringarooma Bay Prospect	4

Orieco Prospect

Both traverses measured in this area indicate a negative anomaly although neither traverse was extended far enough to the west to close the anomalies. In each case sulphides are known to exist below the traverse lines and the X' traverse is positioned over gossan outcrop. The maximum anomaly measured was about -40 mV and in this case (Traverse X') the sulphides were a maximum of approximately 20 feet wide and at a depth of about 200 feet below the traverse. The smaller anomaly (at least -22 mV) on traverse 0500N near the air shaft is also over sulphides not more than about 20 feet wide but at a depth of approximately 250 feet. Both traverse 0500N and X' were across a steep ridge and the topographic effect would result in an increase of the negative anomaly on the steep sides of the ridge.

The anomaly on the 0500N traverse is approximately at the limit of detection hence the causative body indicates the minimum width-depth ratio for detectable bodies assuming the sulphide concentration is similar to that of the Orieco orebody. The average sulphide concentration of the Orieco ore is not more than 10%. Hence an orebody of that sulphide concentration would require a width-depth ratio of 0.1 or greater, to be detectable. A higher sulphide concentration would allow the width-depth ratio to be decreased and still permit detection.

Orieco Ridge Prospect

Detail traverses over gossan on the ridge above the Orieco Prospect delineated a narrow positive anomaly of +40 mV. The origin of this is uncertain, but it would appear to be due to the gossanous material near the surface. The narrow anomaly precludes a deep origin and sulphides normally give rise to a negative anomaly on the surface. Sulphides may exist at greater depth, as this area is along strike of the Orieco mineralisation. However the reconnaissance traverses were too limited to permit deep penetration.

Ringarooma Bay Prospect

A grid was laid out in this area and the maximum anomaly observed was about +20 mV. All the profiles are irregular and are markedly different in character to those at the Orieco Prospect.

In the area of detailed coverage a correlation could be made between traverses, but it is extremely tenuous. The wavelength of the anomalies is small and they have a near surface origin. The SP results do not indicate the presence of a detectable sulphide body below the surface "gossans".

North Ringarooma Bay Prospect

A single SP traverse over a "gossan" at this prospect indicated one anomaly of -20 mV. The profile was similar in character to those obtained at the Ringarooma Bay Prospect. The anomalies are due to near surface features and do not indicate any sulphide mineralisation.

Summary

The SP profiles obtained at the Orieco Prospect are consistent with the known buried sulphides. Profiles in other areas were different in character being composed of sharp narrow anomalies of varying size. They do not indicate any buried sulphide mineralisation with the detection limits of the method. All traverses were located over "gossans" although these "gossans", except at the Orieco Prospect and the Orieco Ridge Prospect, appeared to be ferruginous Mathinna Sediments rather than gossans sensuo stricto (refer A.G.I. Glossary of Geology and Related Sciences).

It appears that the SP method will indicate sulphide mineralisation in Mathinna sediments although the anomalies are not large. Most anomalies were marginally above background and this could be due to the apparently deep water table and high resistivity of the rocks. The sulphide mineralisation at the Orieco Prospect is at the detection limit for a body of that grade.

Recommendations

The size and grade of the known ore bodies at the Orieco are such that they can just be detected. Smaller (or deeper) bodies will not be detectable unless the grade is considerably higher. A deep water table is not favourable for SP investigations and hence further SP work is not recommended. It would however be useful to confirm these results to determine

whether any of the SP anomalies were transient effects. Further geophysical investigations in this area could consist of reconnaissance IP traverses using the Orieco Prospect to determine whether the technique will assist in the exploration of this area. As the IP technique is relatively expensive a full evaluation should be made prior to any commitment.

for JEDS PTY. LTD.

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Geophysicist.

FIGURES;

1. Orieco Prospect
2. " "
3. Ringarooma Bay Prospect
4. North Ringarooma Bay Prospect.

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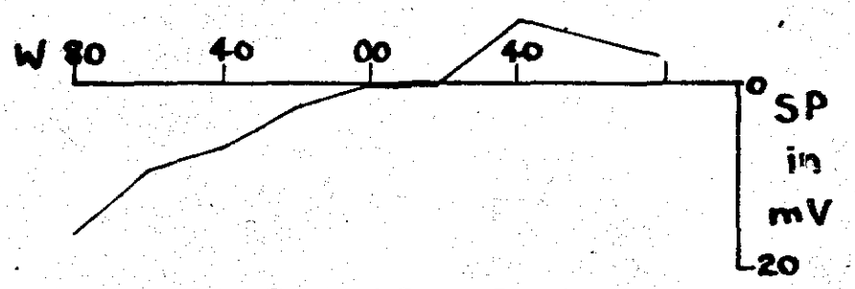
Fig. 1

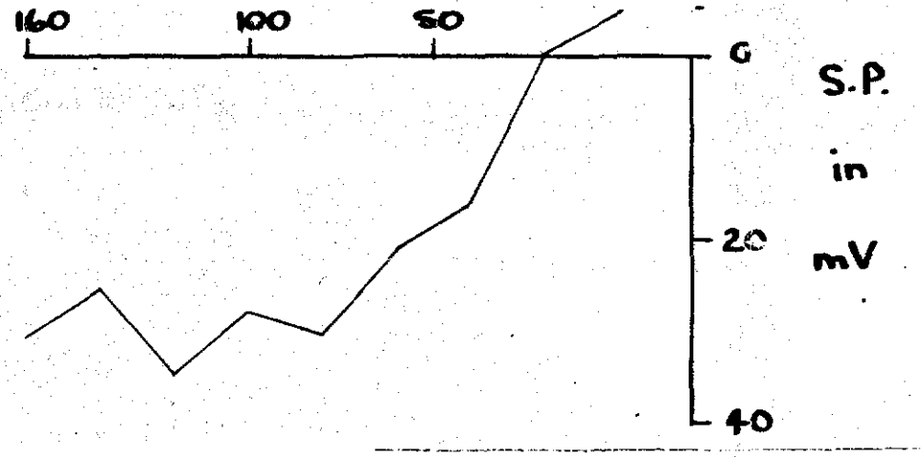
Traverse 00 (Base 0500N/00)



ORIECO PROSPECT
SCAMANDER MINING CORP. N.L.

J.E.S.
4.8.70
1" : 50 ft.

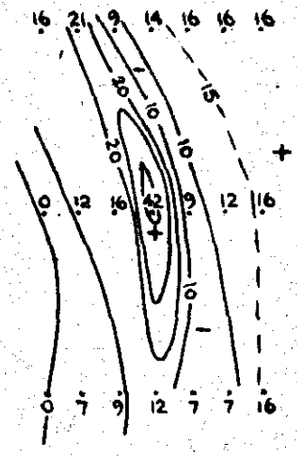
Traverse X' (Base 0200N/00)

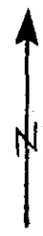


5 cm

005

Fig. 2

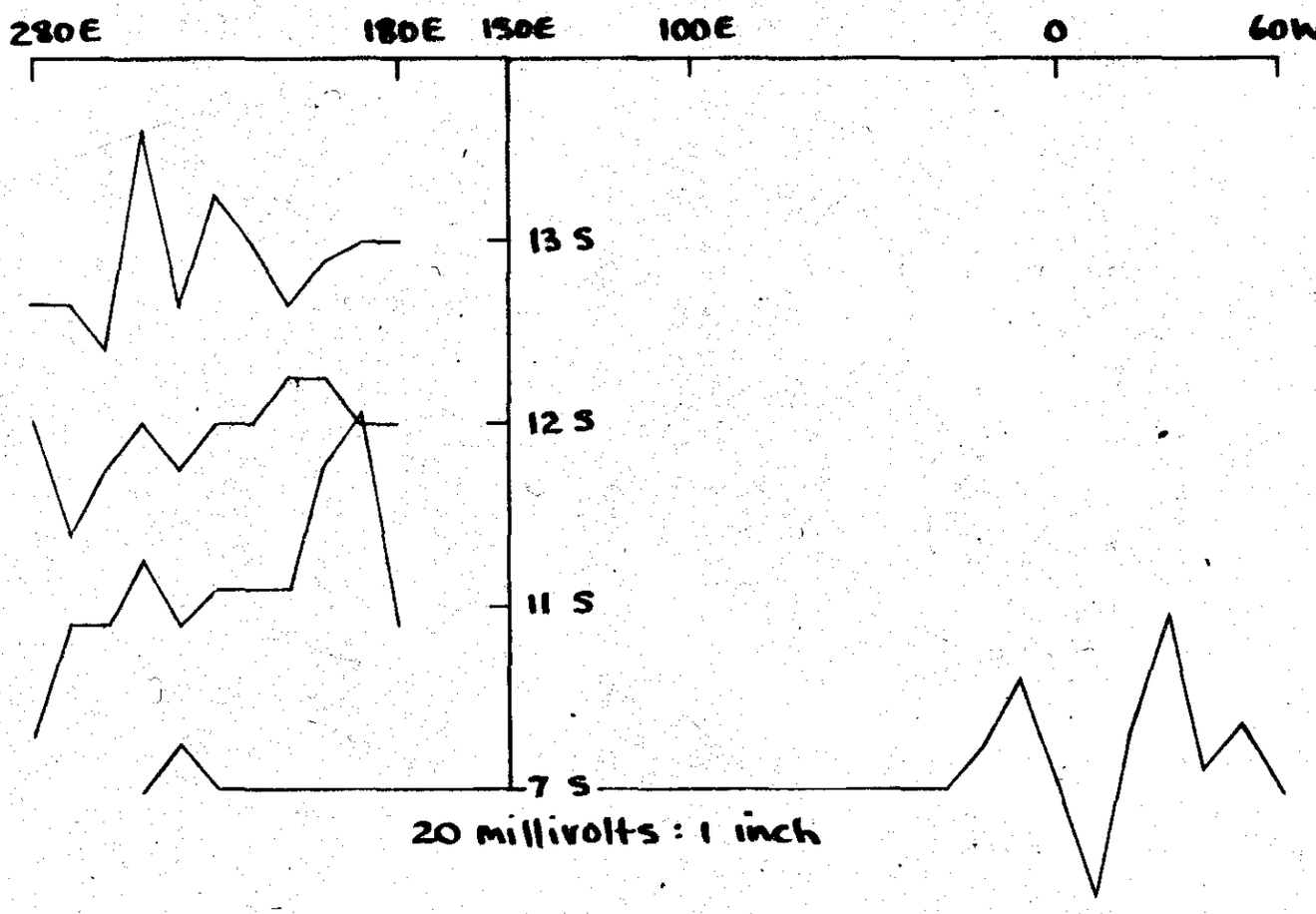




ORIECO RIDGE PROSPECT
SCAMANDER MINING CORP. N.L.

I.E.S.
10.8.70
1" : 50ft.

5 cm



RINGAROOMA BAY PROSPECT
SCAMANDER MINING CORP. N.L.

J.E.S.
28.7.70
1" :·50ft.

Fig.3

5 cm

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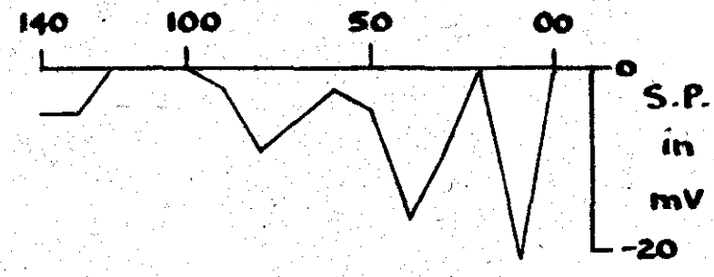
Fig. 4



NORTH RINGAROOMA BAY PROSPECT
SCAMANDER MINING CORP. N.L.
J.E.S.
4.8.70
1" : 50ft.

Arbitrary base : 00

5 cm

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