

70/100

3

COMMONWEALTH OF AUSTRALIA

DEPARTMENT OF NATIONAL DEVELOPMENT

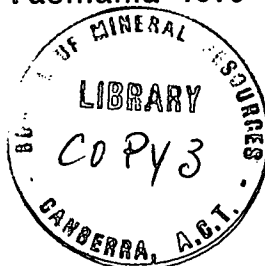
BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

Record No. 1970 / 100

053594

Tests of the V.L.F. Electromagnetic
Prospecting Method in the
Limestone Area near Zeehan,

Tasmania 1970



by

W.J. Langron

Information contained in this report has been obtained by the Department of National Development as part of the policy of the Commonwealth Government to assist in the exploration and development of mineral resources. It may not be published in any form or used in a company prospectus or statement without the permission in writing of the Director, Bureau of Mineral Resources, Geology & Geophysics.



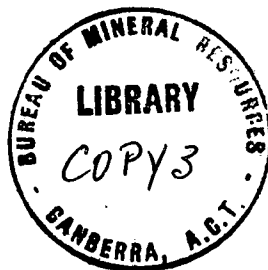
BMR
Record
1970/100
c.3

Record No. 1970 / 100

Tests of the V.L.F. Electromagnetic
Prospecting Method in the
Limestone Area near Zeehan,
Tasmania 1970

by

W.J. Langron



The information contained in this report has been obtained by the Department of National Development as part of the policy of the Commonwealth Government to assist in the exploration and development of mineral resources. It may not be published in any form or used in a company prospectus or statement without the permission in writing of the Director, Bureau of Mineral Resources, Geology and Geophysics.

Record No. 1970/100

**TESTS OF THE V.L.F. ELECTROMAGNETIC PROSPECTING
METHOD IN THE LIMESTONE AREA NEAR ZEEHAN,
TASMANIA, 1970**

by

W.J. Langron.

CONTENTS

	<u>Page</u>
SUMMARY	
1. INTRODUCTION	1
2. GEOLOGY	1
3. TECHNICAL ASPECTS	1
4. DISCUSSION OF RESULTS	1
5. REFERENCES	3

ILLUSTRATIONS

Plate 1. Locality map and traverse (Drawing No. K55/B7-222)

Plate 2. V.l.f. results (Drawing No. K55/B7-223)

SUMMARY

One traverse was read with v.l.f. electromagnetic prospecting equipment across a line of previously located geophysical anomalies.

A v.l.f. anomaly coincides closely with an electromagnetic (Slingram) indication, but two other distinct v.l.f. anomalies are not supported by the previous geophysical results.

1. INTRODUCTION

At the conclusion of a v.l.f. electromagnetic test survey in the Comet area near Dundas (Langron & Gillespie, 1970) one traverse was read across geophysical anomalies described by Daly (1965) in the Limestone area. Plate 1 shows the location of the v.l.f. traverse (shown as A-B). The traverse was read with the permission of the present leaseholder, Minops Pty Ltd.

2. GEOLOGY

The geology of the Zeehan mineral field is described by Blissett (1962). In this area lead-silver and possibly zinc mineralization occurs in limestone.

The area is flat, covered with button grass and peat, and rather swampy.

3. TECHNICAL ASPECTS

A description of the v.l.f. method is given by Haigh (1970).

Traverse A-B was paced using some pegs remaining from the 1965 survey; readings were taken at intervals of 25 feet along the traverse. This line of geophysical anomalies was chosen for examination because it is oriented in the direction of the v.l.f. transmitter (NWC North West Cape, 22.3 kHz).

4. DISCUSSION OF RESULTS

Profiles of the in-phase and quadrature vertical components are shown in Plate 2.

There are three (and possibly four) anomalies contained in the in phase profile but little corresponding variations in the quadrature component. One v.l.f. anomaly coincides with electromagnetic (Slingram) and self-potential (S-P) anomalies located in 1954 (the axes of which are shown in Plate 2). Trenching of these anomalies by bulldozer revealed graphitic and carbonaceous beds beneath the peat cover.

Assay results of the core of DDH No. 2 showed a maximum of 0.25% lead at a vertical depth of 95 feet (29 metres). The same pattern, but with lower values of lead, occurs in DDH No. 1, which was drilled to test a stronger portion of the anomaly on Traverse IX-A.

There were no Slingram or S-P anomalies located about 225E and 1025E where there are clear v.l.f. anomalies, or about 750E where the v.l.f. anomaly is not so clearly defined. However, there is a reversal (though rather indistinct) of the quadrature component associated with these anomalies, and comparison with case histories suggests that such anomalies are due to steeply dipping conductors beneath a conducting overburden. The absence of Slingram indications (particularly about 225E) is rather disturbing. The v.l.f. method, in principle, does offer some discrimination against overburden but it is not clear how this is related to the differing Slingram response at 225E and 550E.

The indication at 225E could be investigated by costeaming. The anomaly at 1075E appears to originate from a deeper source and could be investigated by the induced polarization (IP) method. Unfortunately no information is available concerning the old diamond-drill hole on Traverse X.

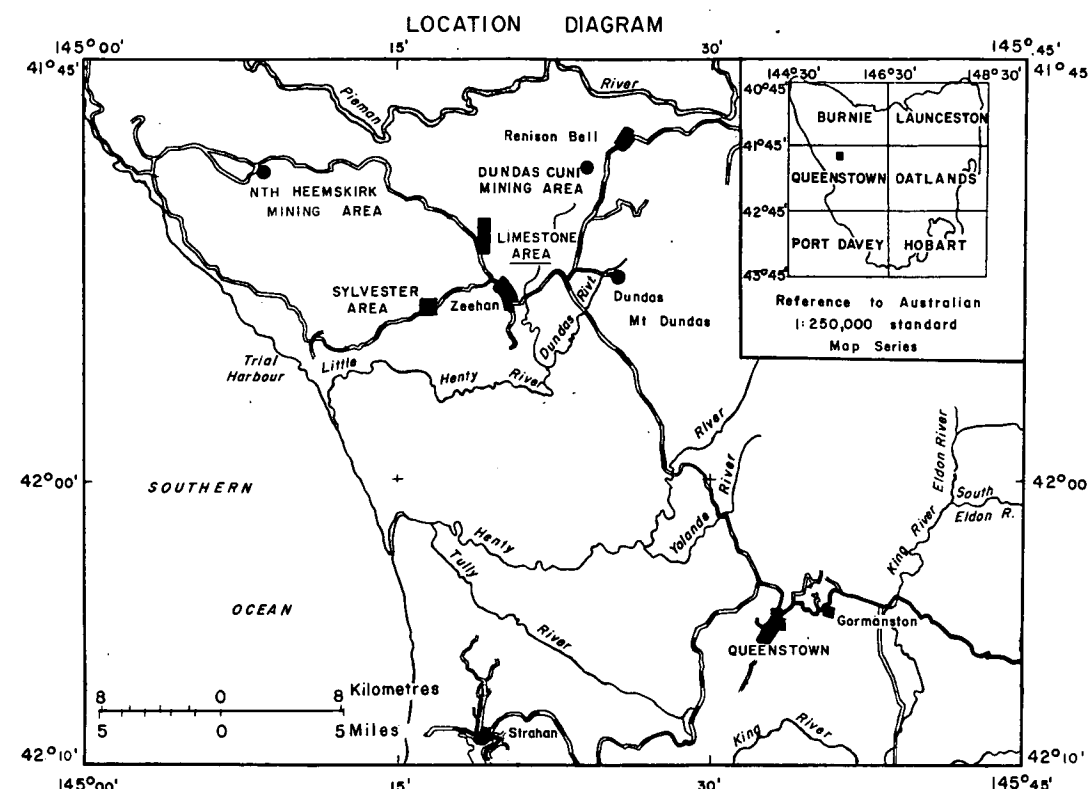
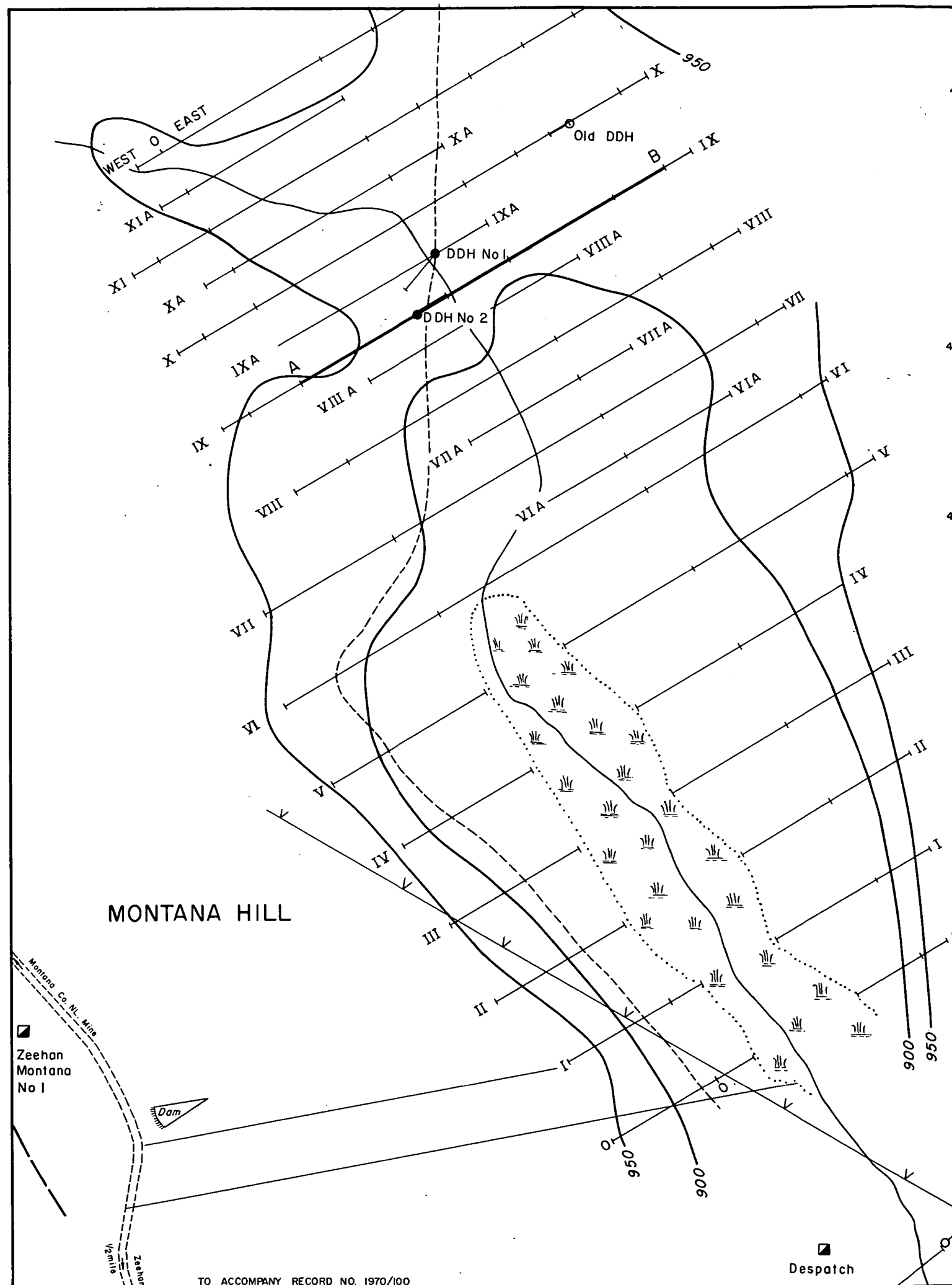
5. REFERENCES

BLISSETT, A.H., 1962 - Zeehan. One-mile geological map series.
K55-5-50. Explan. Rep. Geol. Surv. Tasmania.

DALY, J., 1965 - Zeehan geophysical survey, Tasmania 1954.
Bur. Min. Resour. Aust. Rec. 1965/138 (unpubl.).

HAIGH, H.E., 1970 - Preliminary tests of the EM16 prospecting
equipment at Captains Flat, New South Wales 1968. Ibid.
1970/22 (unpubl.).

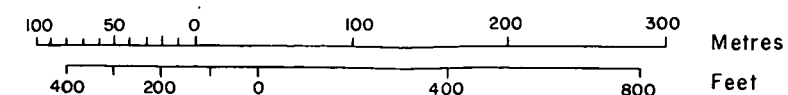
LANGRON, W.J., and GILLESPIE, P.J., 1970 - Tests of the v.l.f.
electromagnetic prospecting method in the Comet and Sylvester
areas near Zeehan, Tasmania 1970. Ibid. 1970/96 (unpubl.).

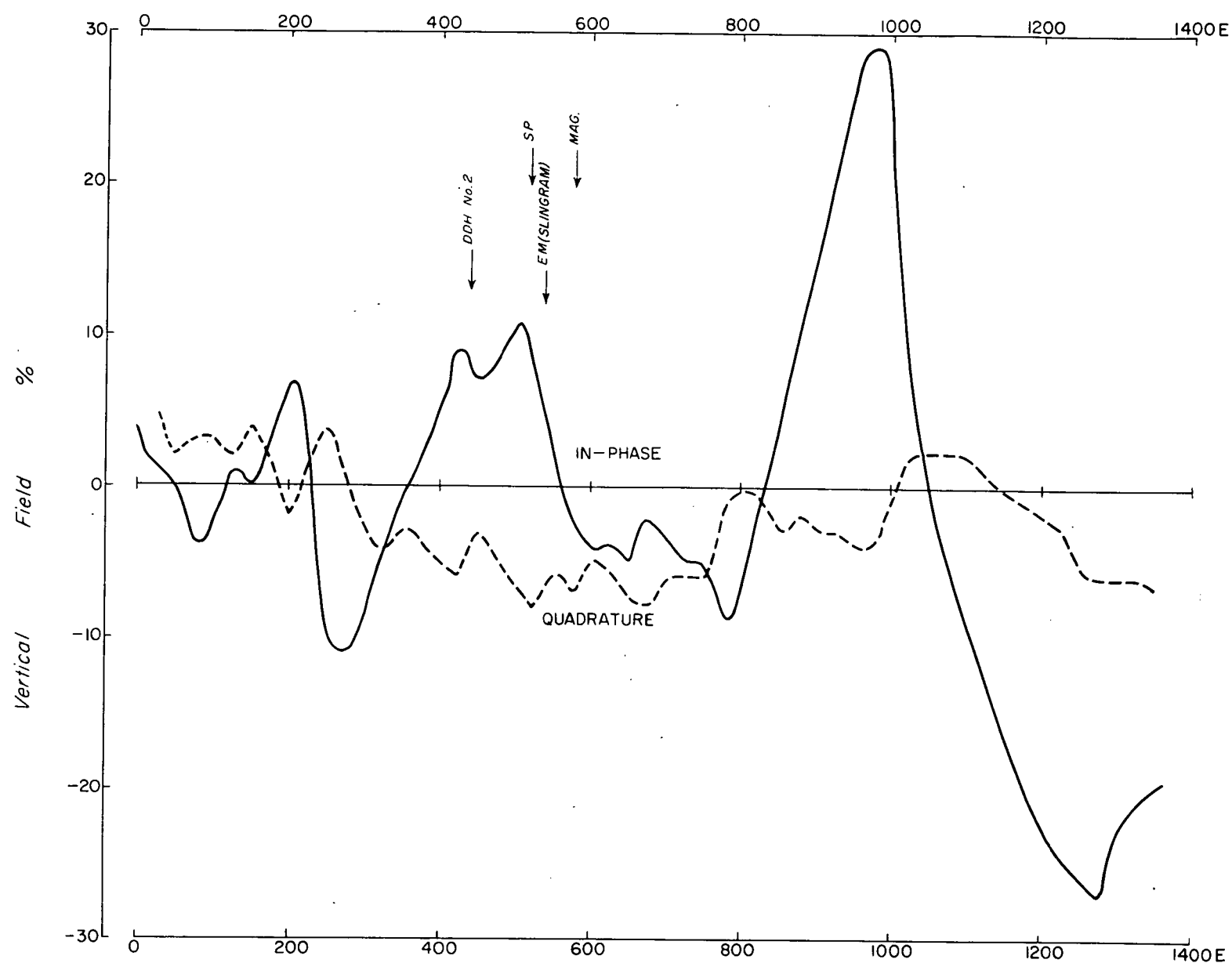


- LEGEND
- A — B VLF results traverse
 - +—+— Geophysical traverse
 - Elevation contours
 - Swamp
 - High tension power line
 - Main fault
 - — Drill hole
 - Road
 - Track
 - Stream pattern
 - Shaft (inaccessible)

LOCALITY MAP AND TRAVERSE LAYOUT

V.L.F.-EM TEST TRAVERSE
LIMESTONE AREA, ZEEHAN, TAS





V.L.F. RESULTS
LIMESTONE AREA, ZEEHAN, TAS

