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MICROFILMED

INDUCED POLARISATION SURVEY

VOYAGER 10

ELLIOTT BAY, TASMANIA.

DKSG

S.T. Mudge

March 1979

OPEN FILE

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INTRODUCTION

Voyager 10 is located in E.L. 27/76 (Elliott Bay) in south-west Tasmania.

The area is held under licence by Geopeko as part of a base metal exploration tenement.

The prospect is about 1.5 km south of the Lewis River and about 3 km east of the Lewis River bridge. Its location is shown in Drawing No. 3964 S/A.

The prospect was developed following favourable geological results obtained from the 1978 survey of the area. It is also the southern extension of the Voyager 2 prospect.

A combined aeromagnetic and electromagnetic (AEM) survey (Georex-Lewis River Area) was flown over the area in 1975 for the previous tenure holder (BHP Co. Ltd.) AEM anomaly 16 is in the vicinity of the Voyager 10 prospect. No magnetic anomalies were detected in that area.

An attempt was made during the 1978 Voyager 2 IP survey (Mudge 1978) to locate and test with IP, AEM 16. The results of that survey were inconclusive with regards to AEM 16.

During February 1979 an induced polarisation (IP) survey was conducted on a wide spaced (200 m) grid. A self potential (SP) survey was also conducted to further test the IP results.

GEOLOGY

The prospect is located on a belt of north-south striking acid pyroclastics and quartz porphyries. They are believed to be the southern portion of the Cambrian Mt. Read volcanic suite.

Several narrow north-south striking veins of sulphide mineralisation outcrop at the Voyager 2 prospect, about 1 km north of Voyager 10.

There are large areas of outcrop on the prospect, but it is otherwise covered by a shallow layer of peat and button grass. Dense forest lies to the east of the grid.

A massive sulphide deposit, similar to those found elsewhere in the Mt. Read volcanic suite is the exploration model.

INDUCED POLARISATION

A dipole-dipole IP survey was conducted on lines 8200N to 9000N inclusive. An Elliot 1.5 KW 2 second time domain transmitter was used in conjunction with a Scintrex IPR-8 receiver.

The survey was aimed at locating any sulphide mineralisation occurring along strike from the Voyager 2 prospect, and also to test the area of AEM 16.

The dipole length was 50m, considered a suitable compromise between resolution and depth sought.

The dipole arrays for each line were centred as follows:

Lines 8200N to 8800N inclusive at 10250E, 10600E and 10950E and Line 9000N at 10150E, 10450E and 10800E.

The results are presented as pseudo-sections of apparent resistivity, chargeability and metal factor. Chargeabilities are those for the M_{232} portion of the Scintrex IPR-8 decay curve. Profiles are shown in Drawing Nos. 4550 S/B, 4551 S/A and 4552 S/B.

Signal-to-noise ratios were generally high.

Resistivities on lines 8600N to 9000N inclusive are generally less than $150 \Omega \text{ m}$ east of 10650E. A similar zone exists between 10500E and 11000E on lines 8200N and 8400N. The low resistivities probably indicate a change in rock type.

The metal factor anomaly between 10775E and 10925E on line 8600N is attributed to the corresponding low resistivities. There is no chargeability anomaly associated with this zone. Sulphide mineralisation is probably not the source of the anomaly.

Chargeabilities increase west of about 10100E on lines 8400N to 9000N inclusive. The survey has not extended far enough west to "close off" the anomalies.

This response is also reflected in the metal factors on lines 8400N and 8600N. A polarisable source may exist west of 10100E.

SELF POTENTIAL

A single traverse SP survey was conducted on line 8600N between 10600E and 11125E. The survey was done to test the IP metal factor/resistivity anomaly detected between 10775E and 10925E.

A Fluke 8020A DVM was used with a pair of non-polarising copper in copper sulphate electrodes. Readings were taken at 25 m intervals with respect to a base established at 10600E. The profile is shown in Drawing No. 4549 S/B.

No anomaly was detected. This indicates that a suitable sulphide mineralisation type is not present or that the environment is not suited to the development of a significant SP anomaly.

CONCLUSIONS

The IP survey has tested the area of AEM 16. The resistivity low detected on line 8600N may be the source of AEM 16.

The survey did not detect any extension of the Voyager 2 sulphide mineralisation. Such mineralisation may be present west of the presently gridded area.

The IP and SP surveys did not locate any significant anomalies.

From the results detailed in this report, no recommendations are made for further geophysical surveys on the gridded area.

APPENDICESIP Metal Factors

Metal factors for the IP survey were calculated using:-

$$MF = \frac{M_{232}}{\rho_a} \times t \times 2000 \left[\Omega^{-1} m^{-1} \right]$$

where

M_{232} = M_{232} portion of the Scintrex IPR-8 decay curve $mV V^{-1}$

ρ_a = apparent resistivity [Ωm]

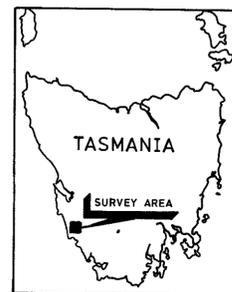
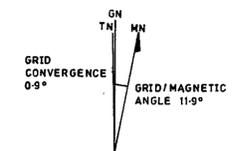
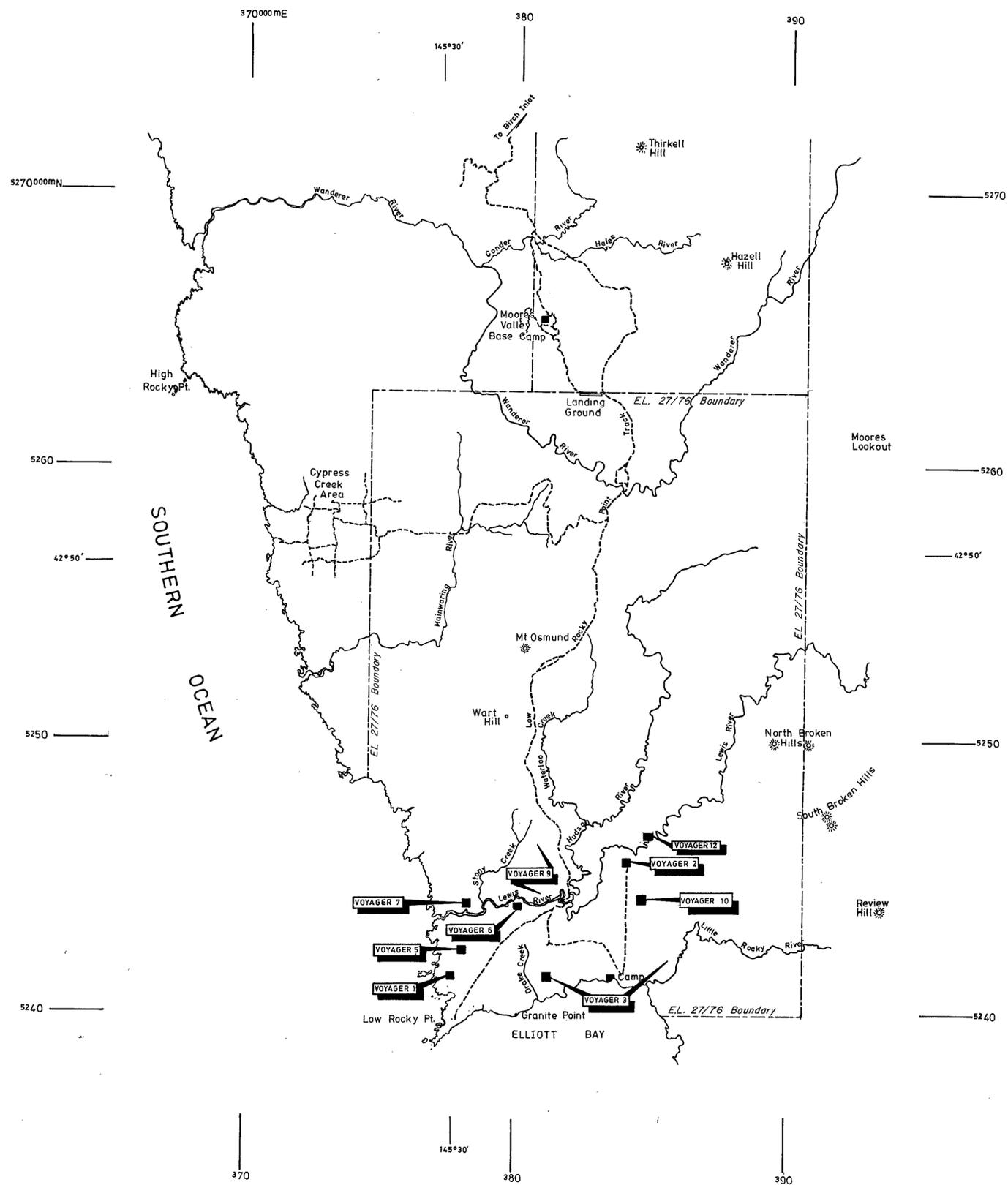
t = integration period for the Scintrex IPR-8 M_{232} component, 520 ms.

2000 is a scaling factor to obtain the units

$\Omega^{-1} m^{-1}$.

REFERENCES

- GEDEX PTY. LTD. 1975: Report on Helicopter Magnetic and Electromagnetic survey in the Lewis River Area, Tasmania (for BHP Company Ltd.)
- MUDGE, S.T., 1978: Geophysical Surveys Voyager 2, Elliott Bay, Tasmania (L.A. Richardson & Assoc. Company Report G 112)



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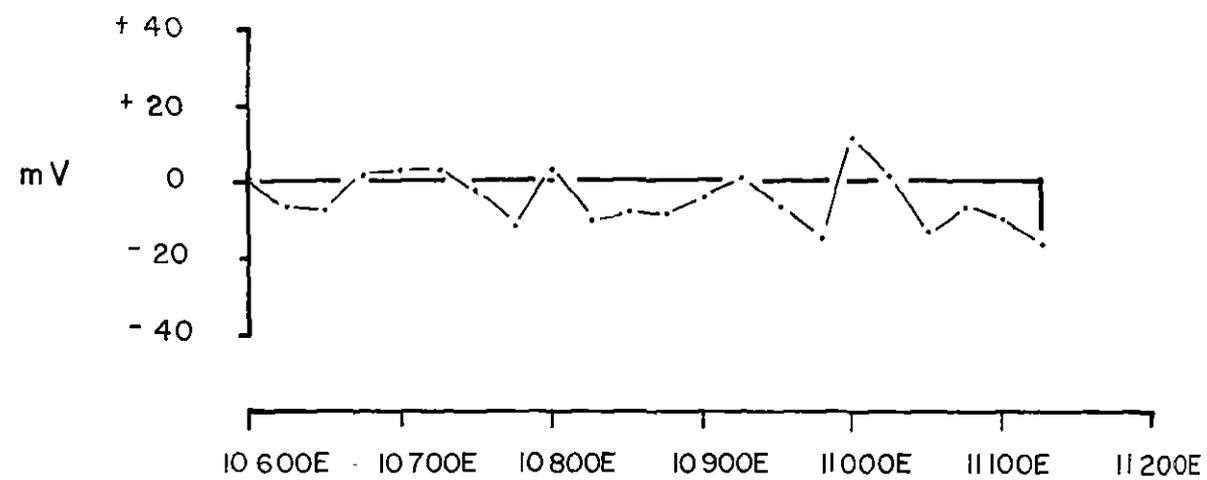
GEOPEKO LTD
Geophysical Surveys
Plan No. 3964 S/A

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Amended - May 1979

Instrument	Datum	Hor Scale	1:100 000	AREA	Elliott Bay - Tasmania	EL 27/76
Observer	S. Mudge	Base Peg	Vert Scale	PROSPECT	VOYAGER PROSPECTS	
Scale Factor	Date	September 1978	Cont Int	PLAN SHOWS	Location Diagram	





LINE 8600N

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5 cm

79-1343

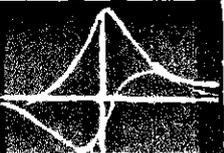
GEOPEKO LTD. 002
Geophysical Surveys.
Plan No. 4549 S/B

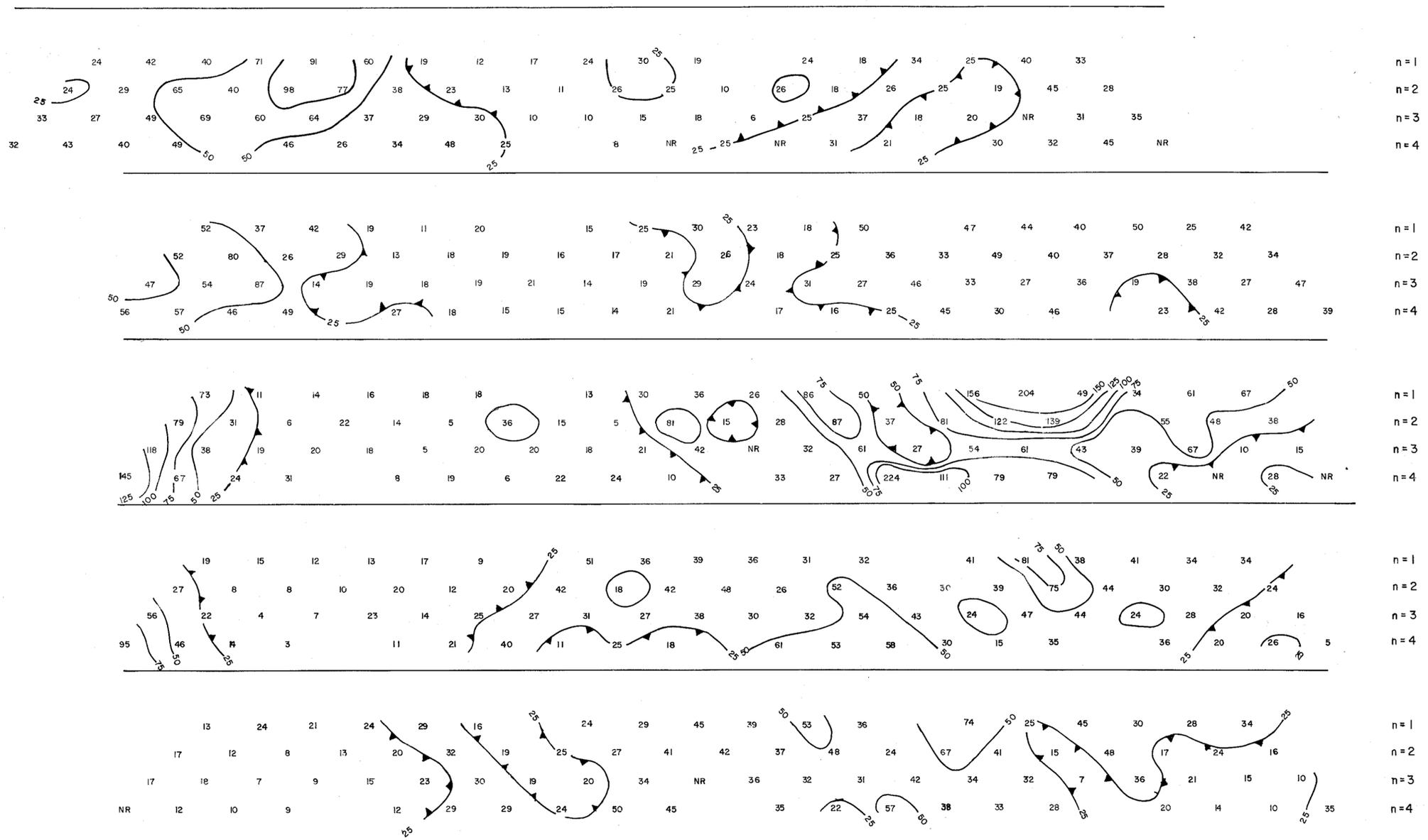
Instrument	Fluke 8020A	Datum	0mV	Hor Scale	1: 5000
Observer	S. Mudge	Base Peg	10600E 0mV	Vert Scale	20mV/ cm
Scale Fact		Date	Feb 1979	Cont Int	

AREA Elliott Bay Tasmania

PROSPECT VOYAGER 10

PLAN SHOWS Profile of Self Potential





9950E 10000E 10050E 10100E 10150E 10200E 10250E 10300E 10350E 10400E 10450E 10500E 10550E 10600E 10650E 10700E 10750E 10800E 10850E 10900E 10950E 11000E 11050E 11100E 11150E

5 cm

4550 S/B

003

Dipole Length = 50m
NR = No Reading

IPR-8
I. Ogilvie

Jan 1979

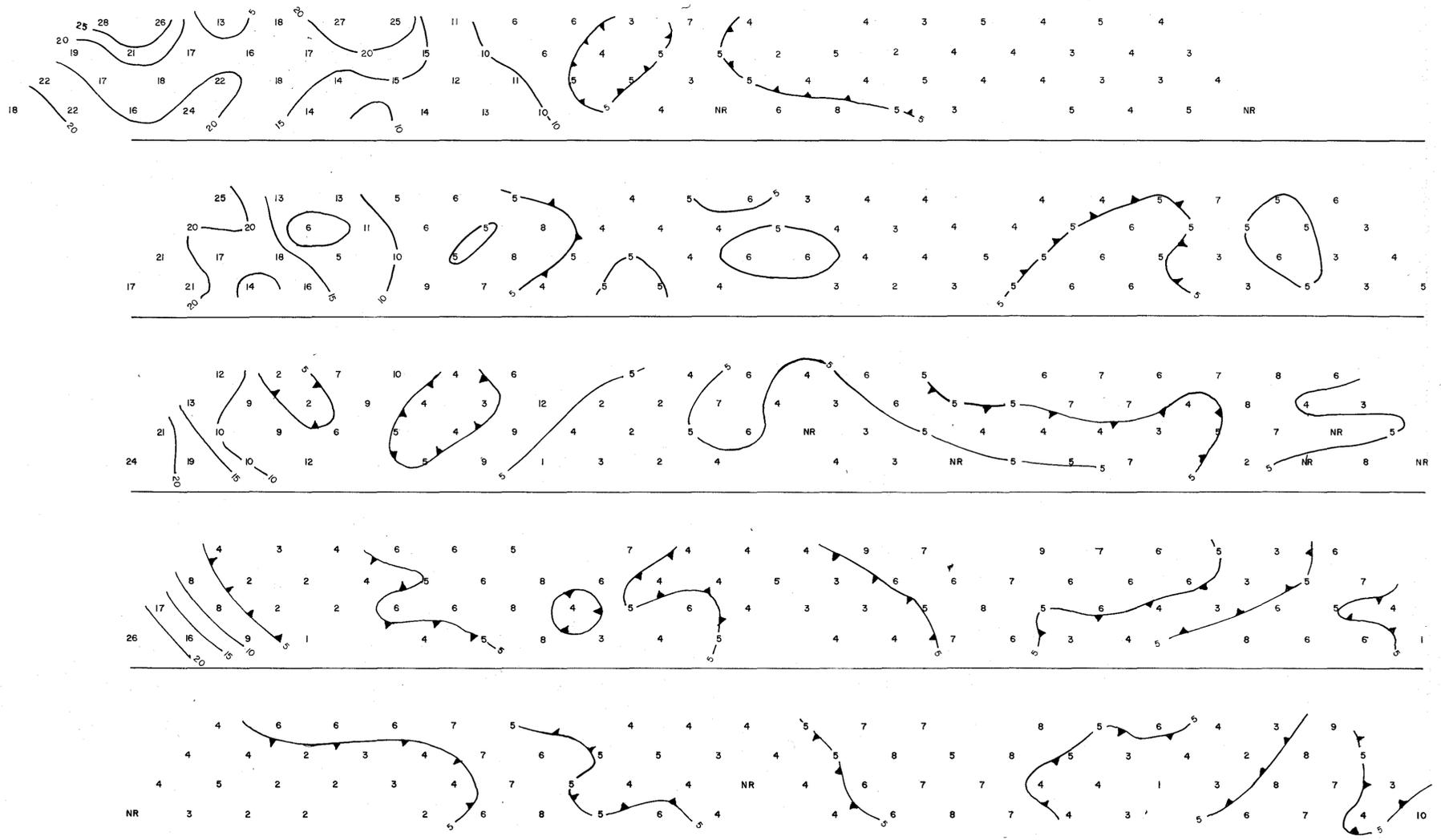
1: 2500
25 $\Omega^{-1} m^{-1}$

Elliott Bay - Tasmania
VOYAGER 10

Pseudosections of Dipole Dipole IP (Apparent Metal Factor - M_{232})

177013

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n=1
n=2
n=3
n=4

LINE 9000N

n=1
n=2
n=3
n=4

LINE 8800N

n=1
n=2
n=3
n=4

LINE 8600N

n=1
n=2
n=3
n=4

LINE 8400N

n=1
n=2
n=3
n=4

LINE 8200N

9950E 10000E 10050E 10100E 10150E 10200E 10250E 10300E 10350E 10400E 10450E 10500E 10550E 10600E 10650E 10700E 10750E 10800E 10850 10900E 10950E 11000E 11050E 11100E 11150E

5 cm

177015

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GEOPEKO LTD.
Geophysical Surveys.
Plan No. 4552 S/B

005

Dipole Length = 50m
NR = No Reading

Instrument	IPR-8	Datum	
Observer	I. Ogilvie	Base Peg	
Scale Fact		Date	January 1979

Hor. Scale	1:2500
Vert. Scale	
Cont. Int.	5 mV V ⁻¹

AREA	Elliott Bay - Tasmania
PROSPECT	VOYAGER 10
PLAN SHOWS	Pseudosections of Dipole Dipole IP (Apparent Chargeability - M ₂₃₂)

