

LOG NO: 12-19	RD.
ACTION:	
FILE NO:	

ASSESSMENT REPORT  
FOR THE  
INDUCED POLARIZATION GEOPHYSICS  
ON THE  
ERIC PROPERTY  
MINERAL CLAIMS

OMINECA MINING DIVISION

NTS 93L / 2

LATITUDE 54 11' N

LONGITUDE 126 45' W

OWNED BY: LEONARD BOURGH & FRED HEDEN

WORK BY: EQUITY SILVER MINES LIMITED

REPORT BY: M. L. AZIZ

DEC 1990

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**20,651**

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## INTRODUCTION

### i) LOCATION and ACCESS

The Eric mineral property is located within the Morice Provincial Forest approximately 25 km. south - southwest of the town of Houston and 620 km. north - northwest of Vancouver, in west - central British Columbia (see figure 1).

The property is situated along a northeast trending valley which is mostly covered by thick overburden and swampy areas. Elevations on the property range from 853 m in the valley to 1127 m along nearby ridges.

Bedrock exposure is generally poor within the valley, but is excellent along the northeast trending ridges that form the valley.

Forest cover in the area was wiped out by an extensive forest fire (Swiss Fire) in 1983. Most of the area has since been clear - cut and is now sparsely covered by small bushes and trees.

Access to the property is via the Carrier road which comes east off of the Nadina/Morice River road at about the 26.5 km. mark. The Eric showing is located on the north side of the Carrier road near the 6 km. mark.

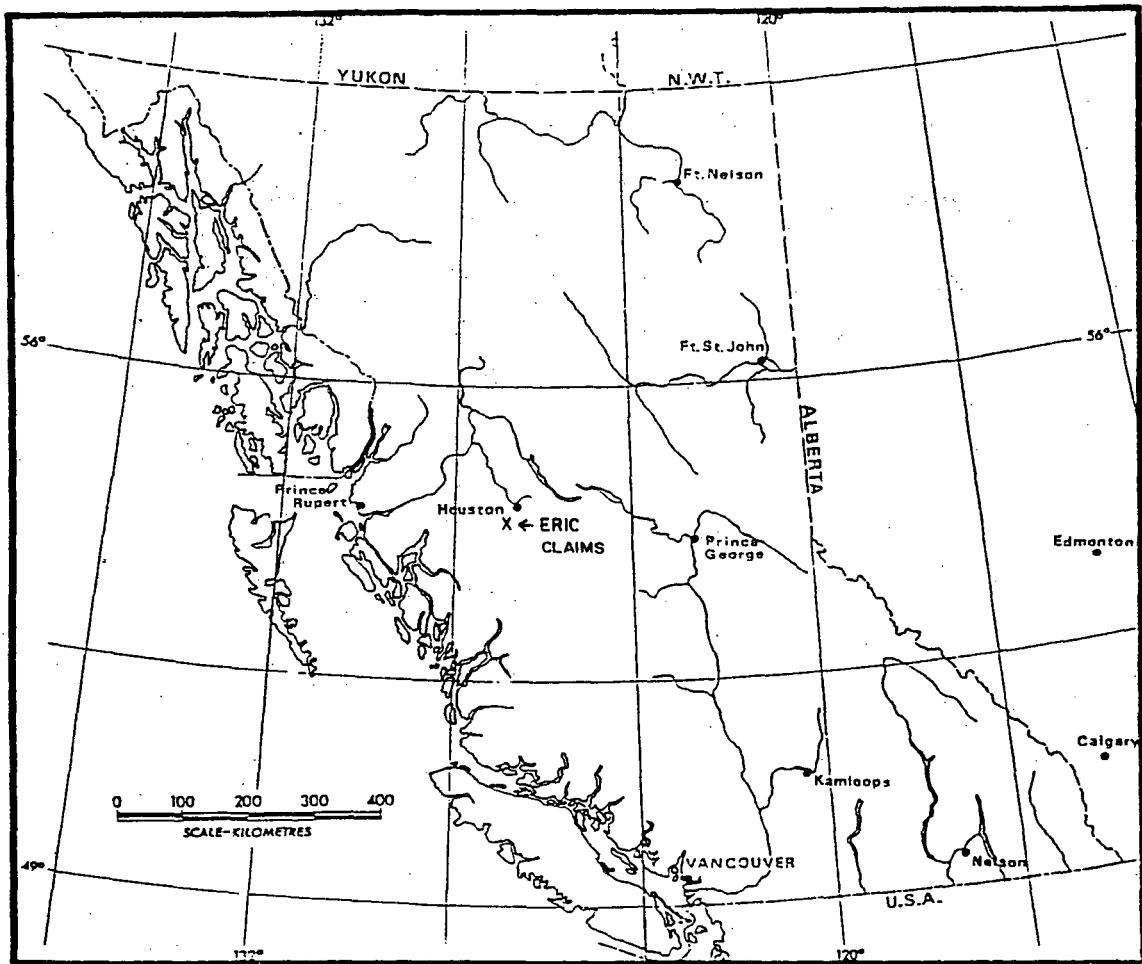


Figure 1 - Property Location Map

### ii) CLAIM OWNERSHIP and STATUS

The Eric property is comprised of the following mineral claims in the Omineca Mining Division (see figure 2) that have been grouped for the purpose of recording assessment :

**TABLE 1**

CLAIM STATUS - ERIC PROPERTY

CLAIM	RECORD #	UNITS	EXPIRY DATE *
ERIC 1	11105	20	SEPT 14, 1993
ERIC 2	11140	20	SEPT 27, 1993
ERIC 3	11141	20	OCT 10, 1993
MAKO 1	12010	20	JUNE 19, 1994
MAKO 2	12011	4	JUNE 20, 1994

\* pending acceptance of this report

The Eric 1,2, & 3 claims are wholly owned by Leonard Bourgh and Fred Heden and are presently under option to Equity Silver Mines Ltd. The Mako 1 & 2 claims are wholly owned by Equity Silver Mines Ltd.

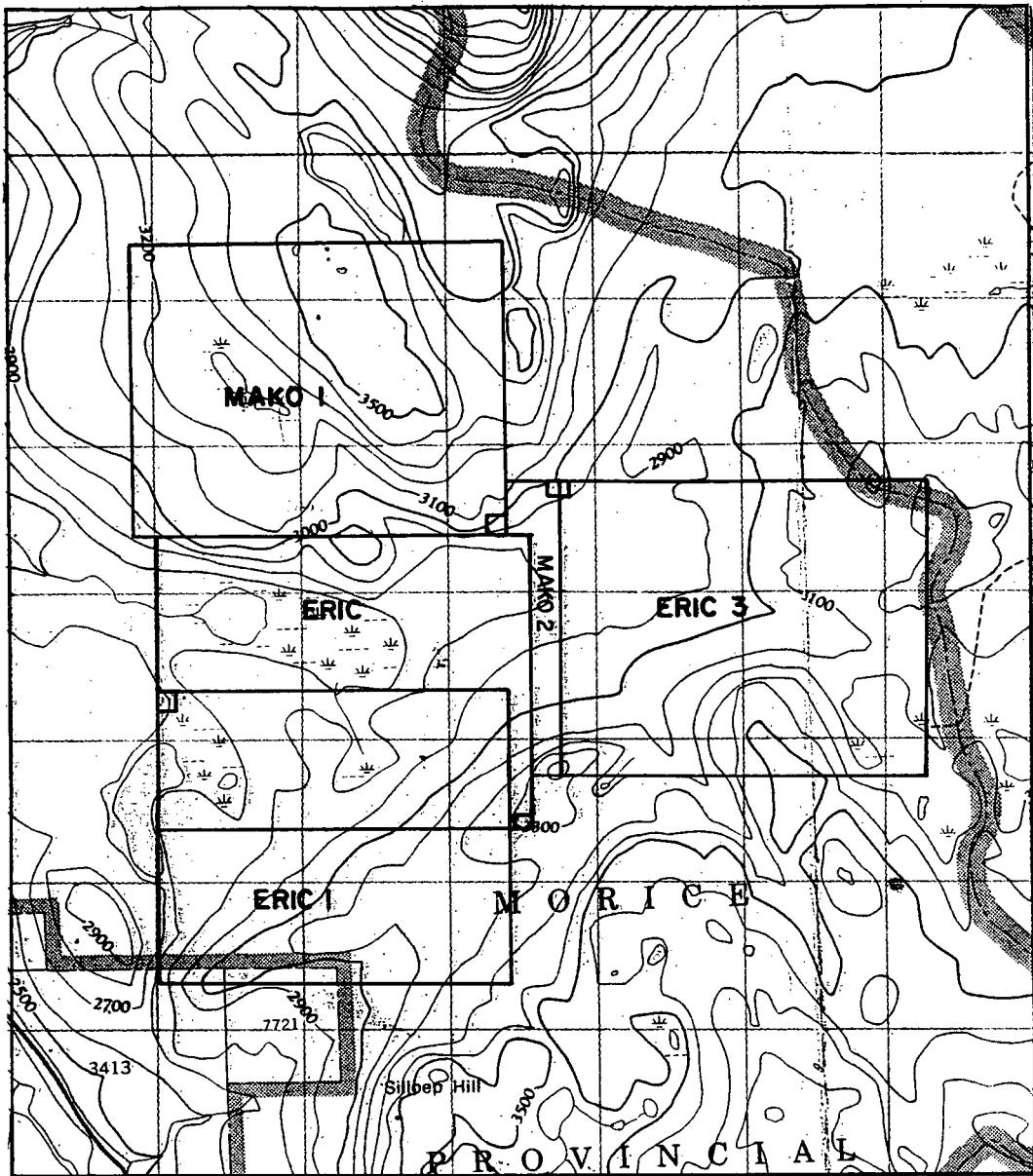
### iii) CLAIM HISTORY

The area covered by the Eric claims was staked as the Aiven claims in 1984 by Equity Silver Mines Ltd. The work done on the Aiven claims concentrated on an area west of the small unnamed lake and was therefore completely off of the present Eric claims.

The Eric claims were staked in the fall of 1989 to cover a small surface showing containing significant silver and copper mineralization.

iv) PURPOSE

In mid June of 1990, 13 lines of 1700 m each and a baseline of 2400 m were cut and picketed at 25 m increments (see figure 3) for the purpose of controlling systematic surveys over the Eric showing area. In August an induced polarization survey was conducted along each of the cut grid lines (see appendix 1 for results and discussion). The geophysics was completed to test for chargeability and/or resistivity anomalies related to the known showing.



## EQUITY SILVER MINES LIMITED

### ERIC CLAIMS

FIGURE 2 - CLAIM MAP  
N.T.S. 93L/2 1:50,000



0 1 2

Figure 2 - Claim Location Map

## GEOLOGY

The regional geologic setting of the Eric claims is based largely on the map published by Tipper and Richards (GSC Open File 351). The area is underlain by an incomplete succession of volcanic and sedimentary rocks that range in age from Lower Jurassic to Upper Cretaceous. Andesitic to rhyolitic volcanic rocks of the Hazelton and Kasalka Groups dominate the stratigraphic package. Intrusive rocks are limited to minor hypabyssal dykes and/or sills of rhyolitic to quartz-latitic composition and small, Late Cretaceous Bulkley stocks of granodiorite or quartz-monzonite composition.

Locally, the geological interpretation has been hampered by an east-northeast trending, overburden filled valley one to two kilometres wide. The southeast margin of the valley is controlled by a major fault that separates Hazelton rocks to the north from Kasalka rocks to the south. The northwest margin of the valley is apparently controlled by a parallel fault within Hazelton strata.

The local Hazelton stratigraphy is composed dominantly of propylitically altered or hematitic ash and mixed ash/lapilli tuffs of andesitic composition with minor intercalated argillite. Units strike at approximately 300 degrees azimuth and dip 45 to 85 degrees southwest. The section is intruded by minor quartz-latite and rhyolite dykes.

Economic interest is centered on a distinctive, porous lapilli tuff unit approximately nine metres thick that is structurally capped by an impermeable argillite unit. Mineralization in the tuff matrix consists of disseminated pyrite

(1-2%), tetrahedrite? (1-2%), galena (0-.5%), sphalerite (trace) and chalcopyrite (trace). The mineralized tuff exhibits extensive carbonate alteration with minor zones of silicification. No sulfide mineralization has been noted in the footwall or hanging-wall units.

### SUMMARY AND RECOMMENDATION

As part of the 1990 work program on the Eric property a grid consisting of 23.5 km. of line was cut and picketed at 25 metre intervals. Between August 19th and September 2nd 1990, Peter E. Walcott and Associates Limited conducted a 20.4 km. induced polarization (I.P.) geophysical survey over the grid to determine the extent of the mineralization.

The geophysical survey began using the dipole - dipole method, but was changed to the pole - dipole method for its better geometric factors due to the deep overburden and swampy condition of the grid. Overall 19.4 km. of the survey was carried out using a 50 metre dipole and 1.0 km. using a 25 metre dipole.

The 50 metre pole - dipole method showed the property to have a low chargeability background with two zones of moderate chargeability response. Reprocessing of the data , based on bore-hole information, reveals a series of subparallel higher chargeability zones that may be related to mineralization or argillite units.

A program of limited diamond drilling is recommended to test the zones of higher chargeability ; to test the tenor of the mineralization at depth ; and to test the interpreted orientation of the mineralized unit.

This report documents expenditures by Equity Silver Mines Limited of \$ 30,571.06 on the Eric property.

**STATEMENT OF EXPENDITURES**

**1. Linecutting**

Bruce Hobson Contracting  
23.5 km. @ \$200 / km. \$ 4,700.00

**2. Chaining and Picketing**

Don Makowichuk  
June 12 - 14, 17  
4 days @ \$100 / day 400.00

Colin Joudrie

June 12 - 14, 17  
4 days @ \$120 / day 480.00

Doug Axani

June 12 - 14, 17  
4 days @ \$100 / day 400.00

Jeff Clarke

June 12 - 14, 17  
4 days @ \$100 / day 400.00

**3. Vehicle**

Transportation 4x4 truck  
4 days @ \$50 / day 200.00

**4. Pole - Dipole Induced Polarization Survey**

20.4 km.  
(including mobilization and report)  
see Appendix 1 23,591.06

**5. Report**

400.00

TOTAL \$ 30,571.06

#### AUTHOR'S QUALIFICATIONS

I, Michael L. Aziz, do hereby certify that:

1. I am a geologist residing at Crest Manor Apts. #302, Butler Ave., Houston, British Columbia, V0J 1Z0
2. I am a 1987 graduate of the University of Western Ontario, London, Ontario with an Honours B.Sc. degree in geology.
3. I have been employed steadily in the geology field since May, 1987.
4. Since May 1989, I have been employed as an exploration geologist with Equity Silver Mines Ltd.
5. I did personally prepare this report.

Respectfully submitted,  
Equity Silver Mines Ltd.



Michael L. Aziz, B.Sc.  
Exploration Geologist

**APPENDIX 1**

PETER E. WALLCOT AND ASSOCIATES LIMITED  
GEOPHYSICAL REPORT ON THE ERIC PROPERTY

PETER E. WALCOTT & ASSOC. LTD.

A GEOPHYSICAL REPORT

ON

AN INDUCED POLARIZATION SURVEY

Houston Area, British Columbia  
N.T.S. 93 L/2

FOR

EQUITY SILVER MINES LIMITED

Houston, British Columbia

BY

PETER E. WALCOTT & ASSOCIATES LIMITED

Vancouver, British Columbia

DECEMBER 1990

GEOPHYSICAL SERVICES

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<u>ACCOMPANYING MAPS</u> - Scale 1:500	<u>MAP POCKET</u>
2ND SEPARATION CHARGEABILITY CONTOURS a=50m	W-476-1
2ND " RESISTIVITY " "	W-476-2
10 POINT MOVING AVERAGE CHARGEABILITY CONTOURS a=50m	W-476-3
10 " " " RESISTIVITY " "	W-476-4
2ND SEPARATION CHARGEABILITY CONTOURS a=50m Trended	W-476-5

- 1 -

INTRODUCTION.

Between August 19th and September 2nd, 1990, Peter E. Walcott & Associates Limited carried out an induced polarization survey over part of the Eric property, located in the Houston area of British Columbia, for Equity Silver Mines Limited.

The survey was carried out over N 20° W lines that were turned off at right angles from a N 70° E baseline, and cut and chained at 25 metre intervals in early spring.

Measurements (first to fourth separation) of apparent chargeability (the I.P. response parameter) and resistivity were made every 50 metres along the lines using the pole-dipole method of surveying with a 50 metre dipole. Initially the dipole-dipole method of surveying was employed but this was discarded in favour of the pole-dipole method with its more favourable geometric factors in light of the low resistivities encountered and the poor electrical contact with the ground.

The I.P. data are presented in contour form on individual pseudo-sections bound in this report. In addition the second separation and the ten point moving average (filter) chargeability and resistivity data are shown in contour form on Maps W-476-1 to 5 that accompany this report.

- 2 -

GEOLOGY.

The reader is referred to reports held and/or written by the staff of Equity Silver Mines Limited.

Basically the property is underlain by propylitically altered or hematitic ash and mixed ash/lapilli tuffs of andesitic composition with minor intercalated argillite of the Hazelton Group, striking N 60° W and dipping 45 to 85° to the southwest.

Mineralization on the property consists of a small showing of disseminated pyrite, tetrahedrite, galena, chalcopyrite and spalerite in a distinctive porous lapilli tuff capped by an impermeable argillite unit.

- 3 -

PURPOSE.

The purpose of the survey was to examine the I.P. response of the showing, and to use this response (if any) to determine the extent of the mineralization and to search for more of the same.

- 4 -

SURVEY SPECIFICATIONS.

The induced polarization (I.P.) survey was started using a portable pulse type system, the principal components of which are manufactured by Phoenix Geophysics Limited and Huntac Limited of Metropolitan Toronto, Ontario.

After partially surveying one line the decision was made to abandon the dipole-dipole method of surveying in favour of the pole-dipole method with its better geometric factors in view of the high noise level, the high conductivity of the middle of the grid (swamp), and the poor contact resistance on the edges, all of which resulted in unreliable overvoltage voltage readings. The signal to noise ratio was further increased by employing a 7.5 kw transmitter manufactured by Huntac Limited instead of the 2.0 kw one of Phoenix Geophysics, and productivity increase was sought by employing a multichannel receiver built by BRGM Instruments of Orleans, France.

The transmitter, which provided a 7.5 kw d.c. to the ground, obtains its power from a 7.5 kw 400 c.p.s. three phase alternator driven by a gasoline engine. The cycling rate of the transmitter is 2 seconds "current-on" and 2 seconds "current-off" with the pulses reversing continuously in polarity. The data recorded in the field consists of careful measurements of the current ( $I$ ) in amperes flowing through the current electrodes  $C_1$  and  $C_2$ , the primary voltages ( $V$ ) appearing between any two potential electrodes,  $P_1$  through  $P_n$ , during the "current-on" part of the cycle, and the apparent chargeability ( $M_a$ ) presented as a direct readout in millivolts per volt using a 200 millisecond delay and a 1000 millisecond sample window by the receiver, a digital receiver controlled by a micro-processor - the sample window is actually the total of ten individual windows of 100 millisecond widths.

The apparent resistivity ( $P_a$ ) in ohm metres is proportional to the ratio of the primary voltage and the measured current, the proportionality factor depending on the geometry of the array used. The chargeability and resistivity are called apparent as they are values which that portion of the earth sampled would have if it were homogeneous. As the earth sampled is usually inhomogeneous the calculated apparent chargeability and resistivity are functions of the actual chargeability and resistivity of the rocks.

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SURVEY SPECIFICATIONS cont'd

The survey was then carried out using the "pole-dipole" method of surveying. In this method the current electrode  $C_1$ , and the potential electrodes,  $P_1$  through  $P_n$ , are moved in unison along the survey lines at a spacing of "a" (the dipole) apart, while the second current electrode  $C_2$  is kept constant at "infinity". The distance, "na" between  $C_1$  and the nearest potential electrode generally controls the depth to be explored by the particular separation, "n", traverse.

In all some 19.4 kilometres of surveying were carried out using the 50 metre dipole, and 1.0 kilometre using the 25 metre dipole.

DISCUSSION OF RESULTS.

Due to limited outcrop exposure the I.P. grid was established to cover east northeasterly trends as dictated by the broad overburden filled valley, and as suggested by the weak spotty geochemical response following the edge of the valley on the north side.

The 25 metre dipole-dipole coverage over Line 0 showed a weak to moderate response apparently associated with the mineralization around 0+25N, and a yet weaker anomaly around 0+12.5S separated from the former by an area of lower response with accompanying lower resistivities, possibly indicative of a fault.

Low chargeabilities and low resistivities were obtained over the swamp to the south suggesting little current was penetrating the bedrock.

High chargeability readings were noted associated with a limited shallow near surface layer of high resistivity around 7+50S.

Similar results were observed around the showing on resurveying the line with a 50 metre dipole in an effort to get better penetration in the swamp where slightly higher resistivities were obtained. However, as expected, an increase in the shallow separation readings around 7+50S was barely discernible.

The survey, as carried out with the 50 metre dipole, showed the grid area to exhibit a low chargeability background, in the order of 5 or so millivolts per volt in areas of higher elevation and in the order of 2 or so in the swamp areas, above which two zones of higher chargeability were clearly discernible as can be seen on Maps W-476-1 & 3, the contoured chargeability plots, separated by an area of lower chargeability around Line 600E. It should be noted here that both the chargeability and the resistivity - Maps W-476-2 & 4 - clearly outlined the swamp area, as did the latter the outcrop area.

The highest chargeabilities, as seen from the individual pseudo-sections, were observed on Lines 200E, 400E and 1000E respectively.

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DISCUSSION OF RESULTS cont'd.

Investigation by diamond drilling of the showing and the chargeability anomaly on Line O revealed the stratigraphic units and the mineralization to strike N 60° W, the latter offset by a fault around 0+00.

Accordingly the results have been recontoured with the above mentioned regional bias, even though the survey was conducted at an oblique angle to the strike. The resultant second chargeability contour plot - Map W-476-5 - suggested a series of parallel anomalous zones trending across the northernmost part of the grid, the causative sources of which are either carbonaceous argillite units or disseminated mineralization associated with porous lapilli tuffs as is the case with the showing.

SUMMARY, CONCLUSIONS & RECOMMENDATIONS.

Between August 19th and September 2nd, 1990, Peter E. Walcott & Associates Limited carried out an induced polarization (I.P.) survey in the Houston area of British Columbia for Equity Silver Mines Limited.

The chargeability results showed the property to exhibit a low chargeability background above which two zones of moderate chargeability response were discernible.

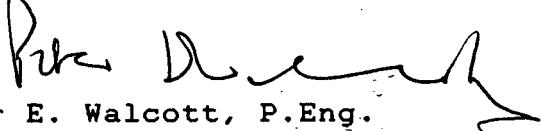
Subsequent borehole investigation of the known mineralization and its accompanying chargeability high revealed the strike of the formation to be some 50 degrees off the assumed..

Reprocessing of the data based on the above then indicated a series of parallel zones of higher chargeability trending across the ridge with possible formational causative sources.

As a result the writer recommends that the results of the survey be compared with those of the soil survey to see if there is any suggestion or hint of mineralization in the chargeability zones.

Respectfully submitted,

PETER E. WALCOTT & ASSOCIATES LIMITED

  
Peter E. Walcott, P.Eng.  
Geophysicist

Vancouver, B.C.  
December 1990

**PETER E. WALCOTT & ASSOC. LTD.**

**A P P E N D I X**  
=====

**PETER E. WALCOTT & ASSOC. LTD.**

- i -

**COST OF SURVEY.**

Peter E. Walcott & Associates Limited undertook the survey on a daily basis. Mobilization and reporting costs were extra so that the total cost of services provided was \$23,591.06.

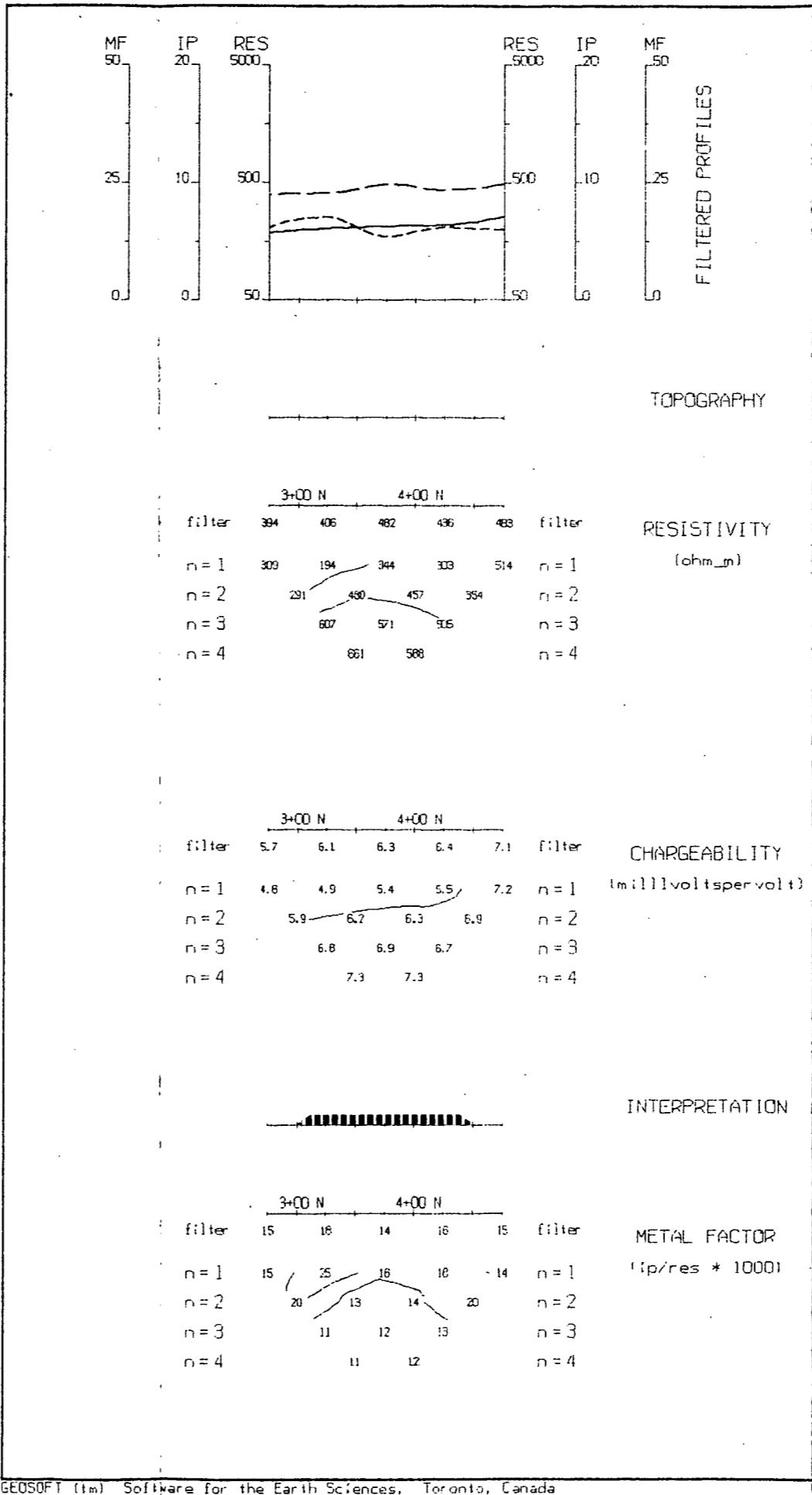
PETER E. WALCOTT & ASSOC. LTD.

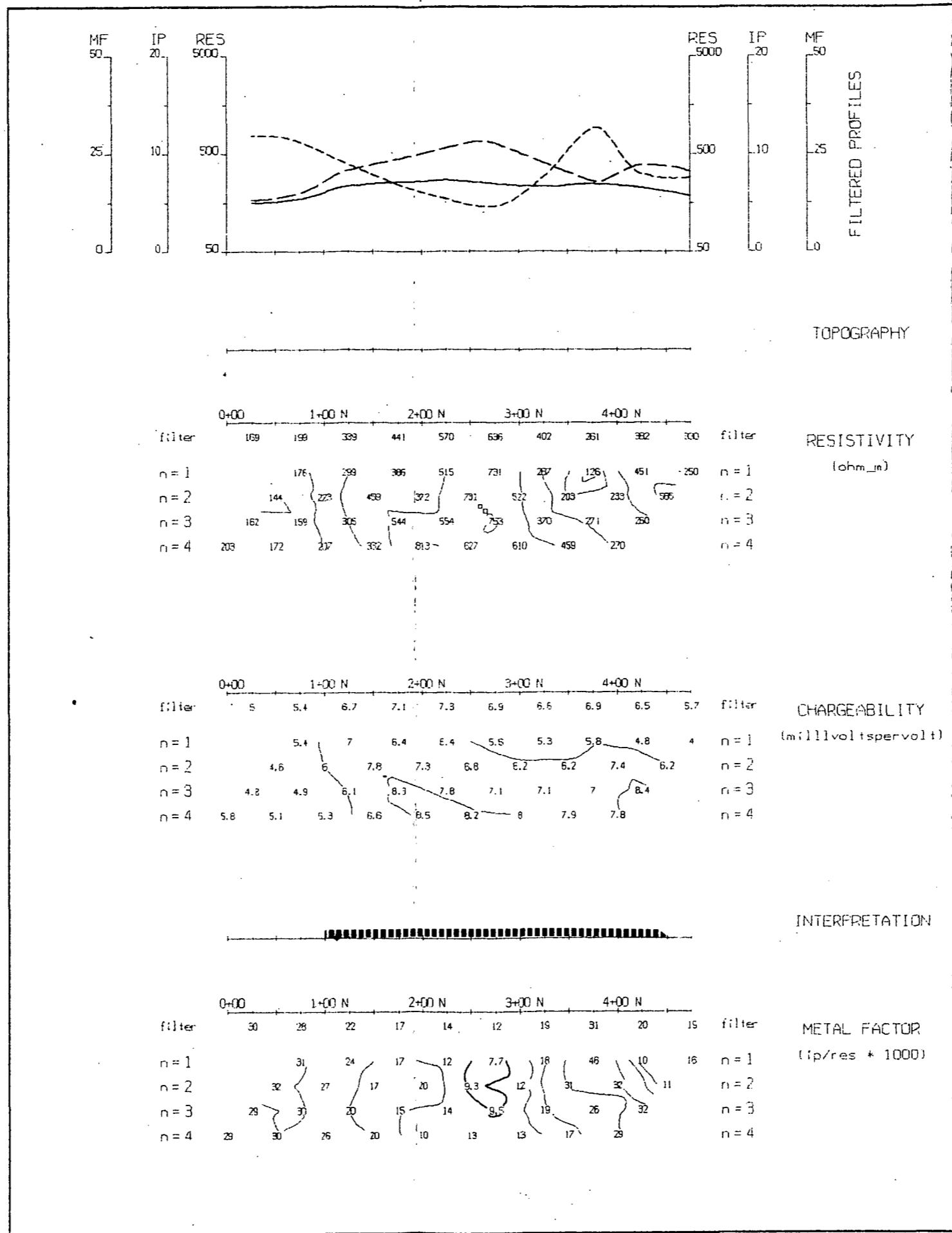
- ii -

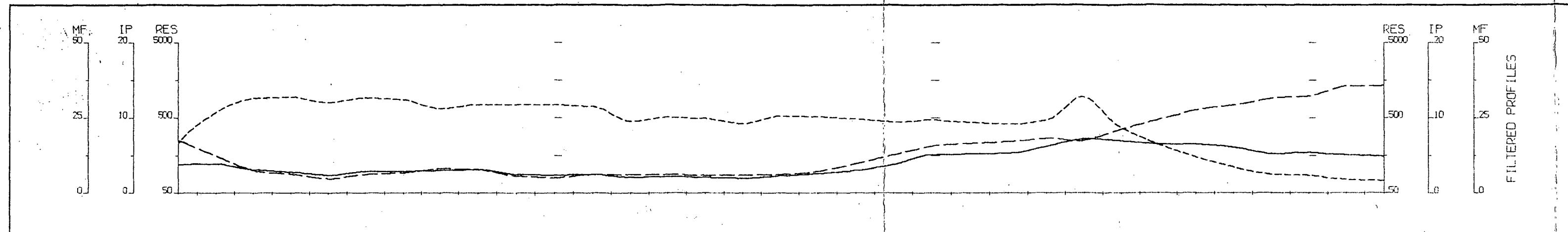
PERSONNEL EMPLOYED ON SURVEY.

Name	Occupation	Address	Dates
Peter E. Walcott	Geophysicist	Peter E. Walcott & Assoc. 605 Rutland Court, Coquitlam, B.C. V3J 3T8	Aug. 18-27th, Sept. 4th, Dec. 4 Dec. 11, 1990
M. Andrews	"	"	Aug. 24-Sept. 2nd 1990
P. Gruenberg	Geologist	"	Aug. 20th-Sept. 1 1990
J. Walcott	Geophysical Assistant	"	Aug. 18-22nd, Dec. 11th, 1990
M. Paschier	"	"	Aug. 24th-27th, 1990
G. Karacunte	"	"	Aug. 24th-Sept. 2nd, 1990
A. Hobler	"	"	Aug. 24th-Sept. 2nd, 1990
R. Summerfield	Geophysical Operator	"	Nov. 27th-30th, 1990

Line 200W  
 belongs here  
 Line 600E

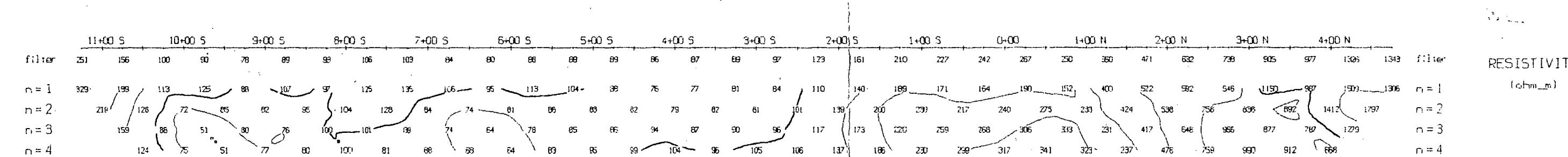






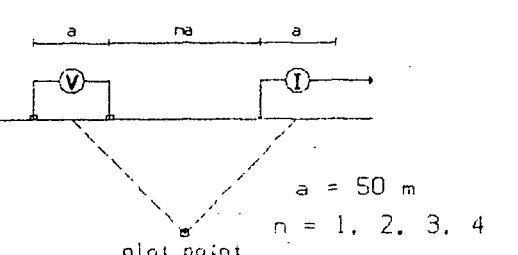
FILTERED PROFILES

TOPOGRAPHY



## Line 200 W

Dipole-Pole Array



## Filtered Profiles

filter \*  
Resistivity ----- \*  
Polarization --- \* \*  
Metal Factor - - - \* \* \* \*

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10...

Instrument: BRGM IP6 Rx HUNTEC 7.5 Kw TX

Operator: P.E.W., M.A.

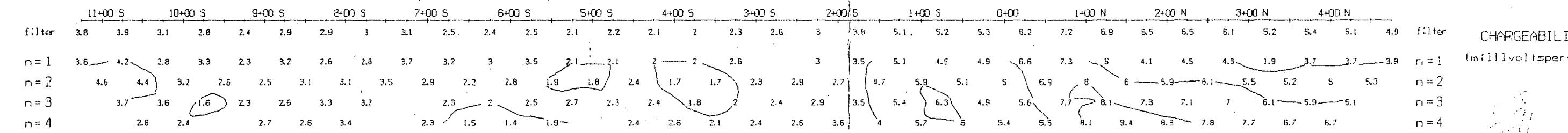
## INTERPRETATION

Well defined, strong increase in polarization with or without marked decrease in resistivity.

Fairly well defined moderate increase in polarization.

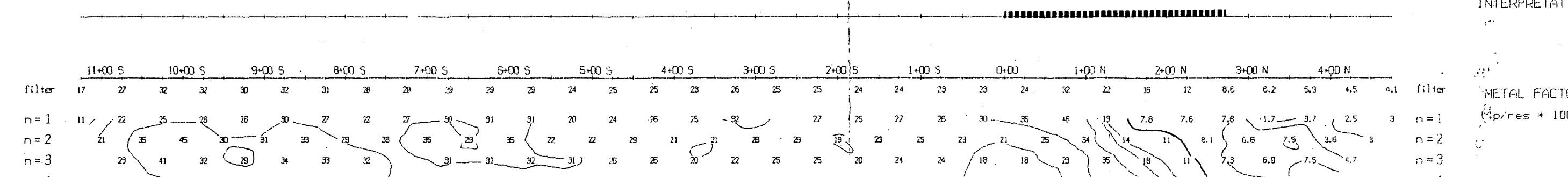
Poorly defined polarization increase.

Resistivity feature.



CHARGEABILITY

(millivolts per volt)



INTERPRETATION

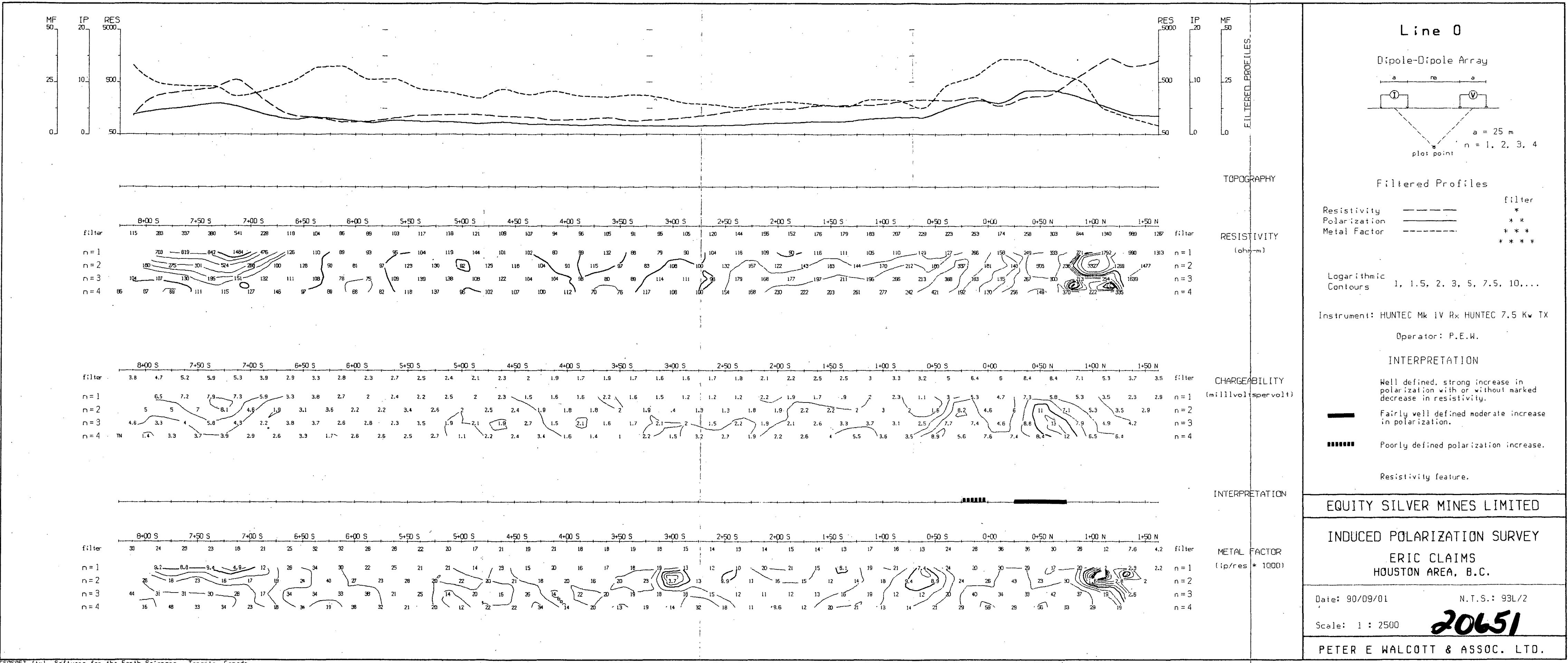
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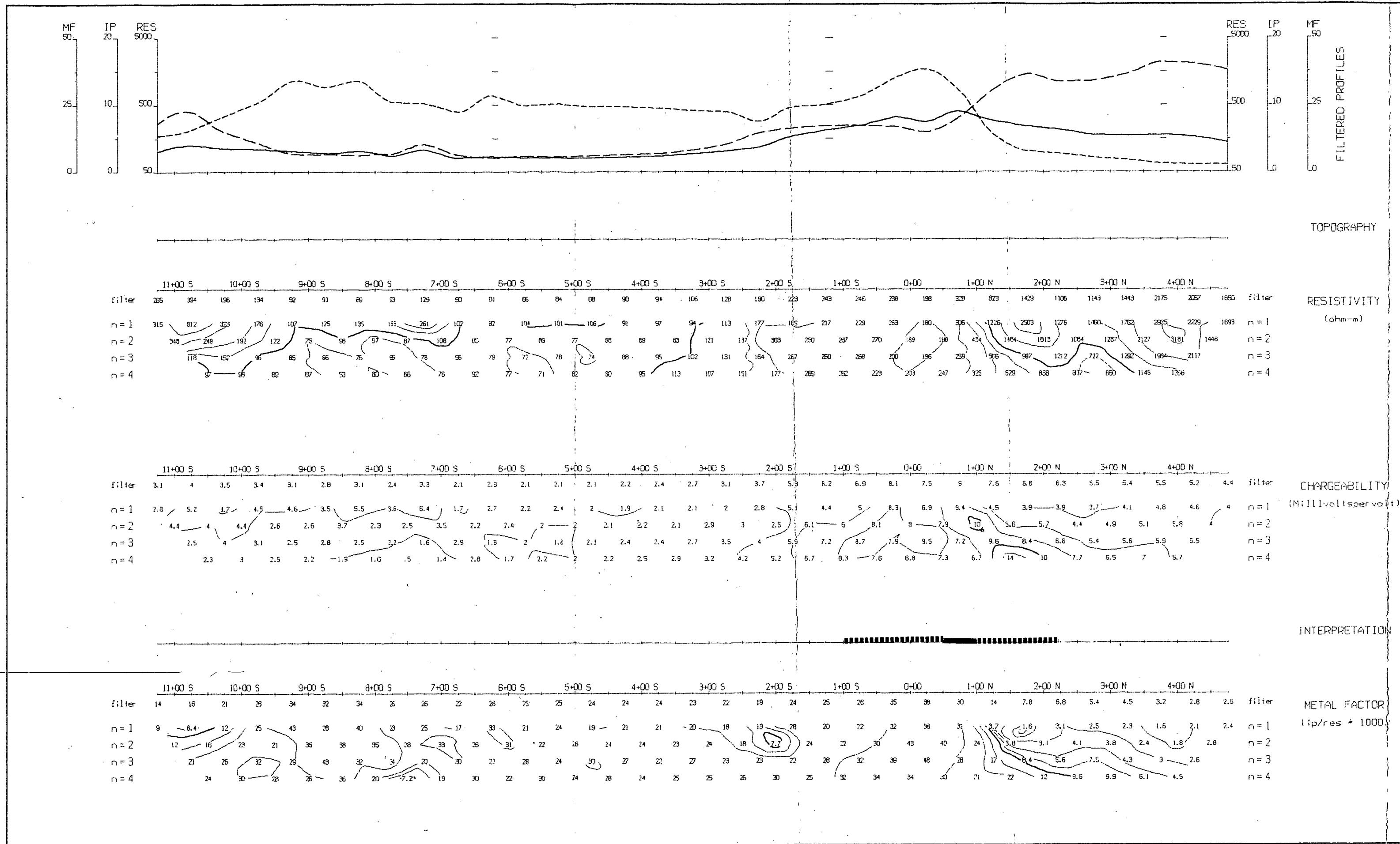
METAL FACTOR (spikes \* 1000)

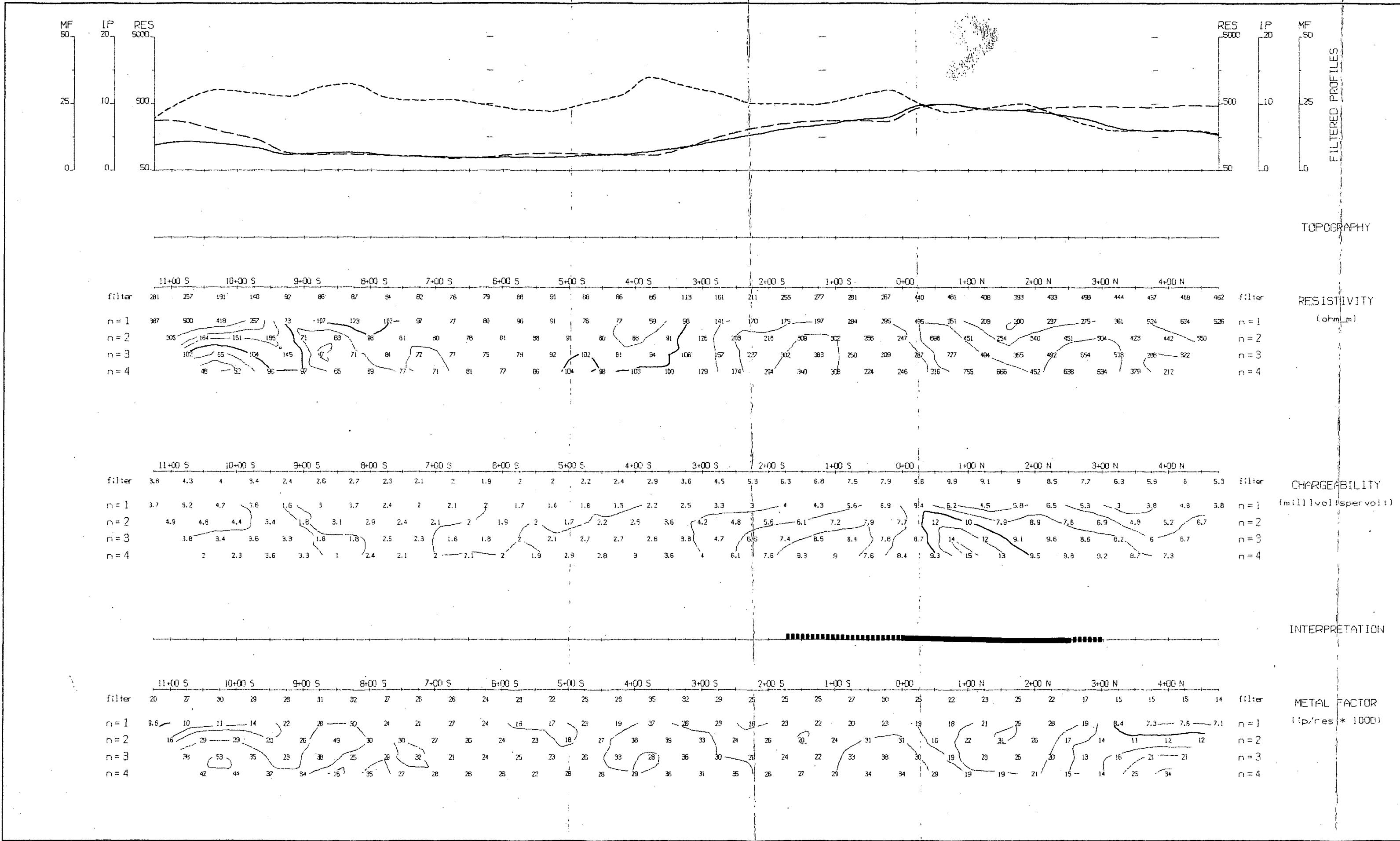
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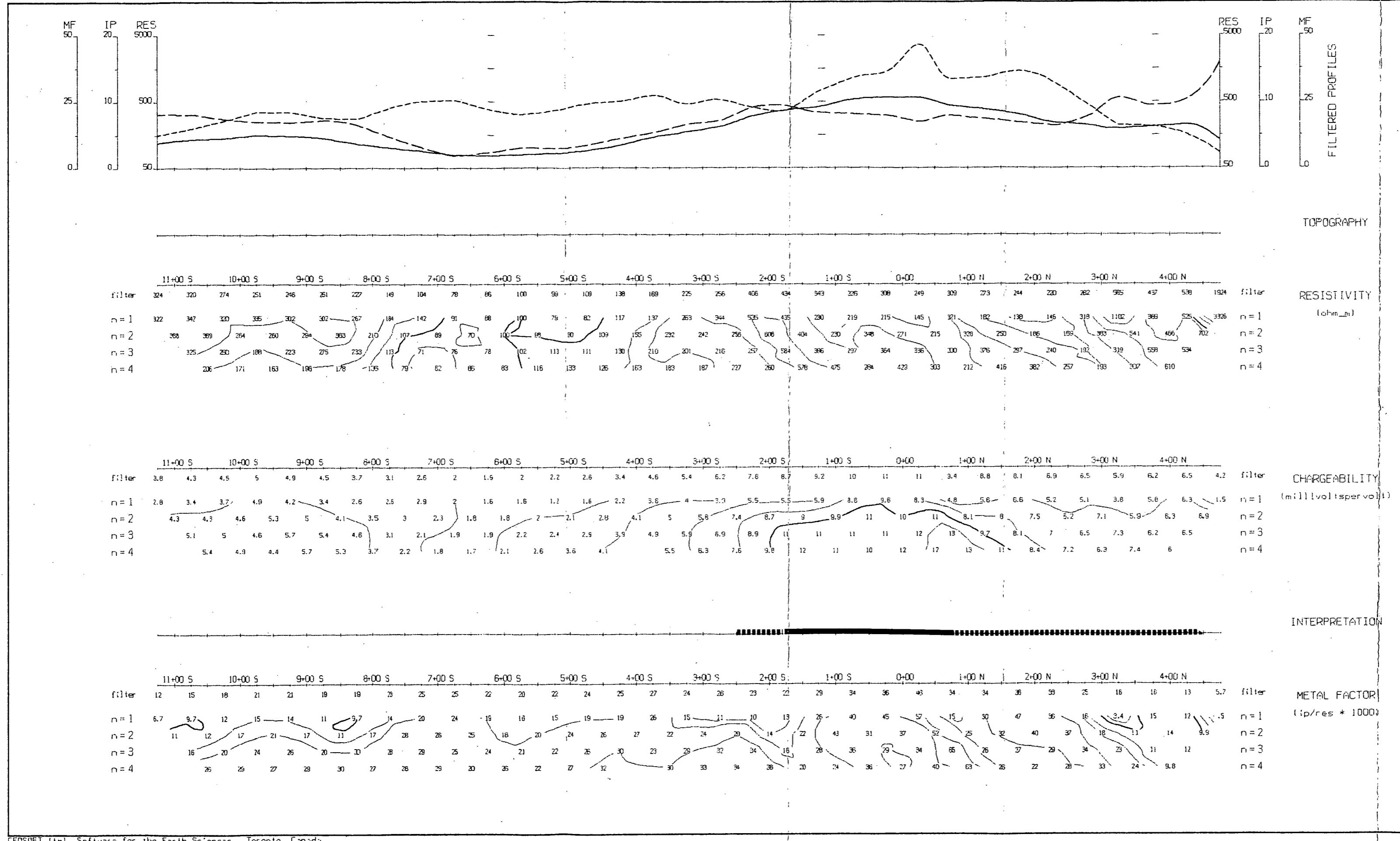
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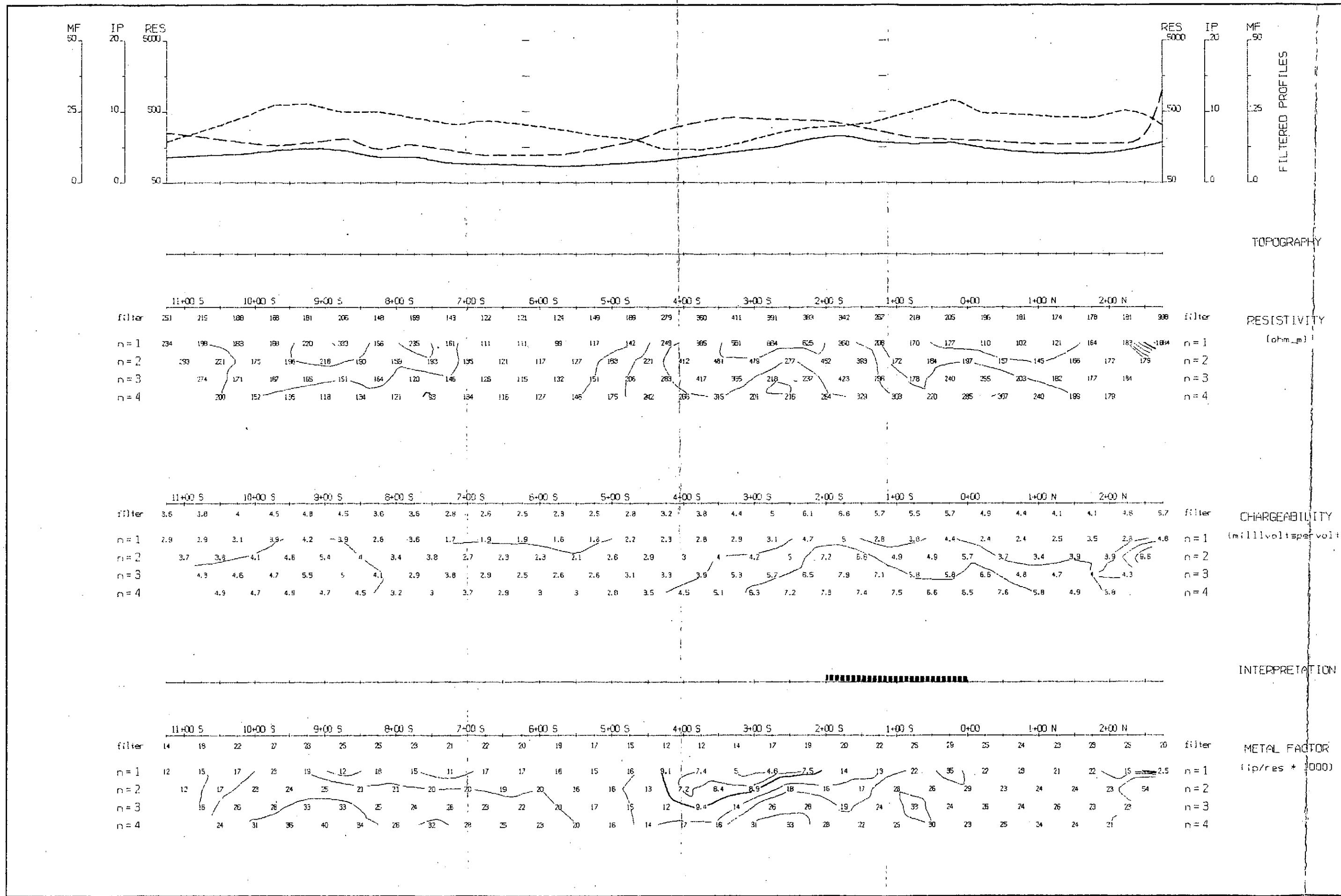
PETER E WALCOTT & ASSOC. LTD.

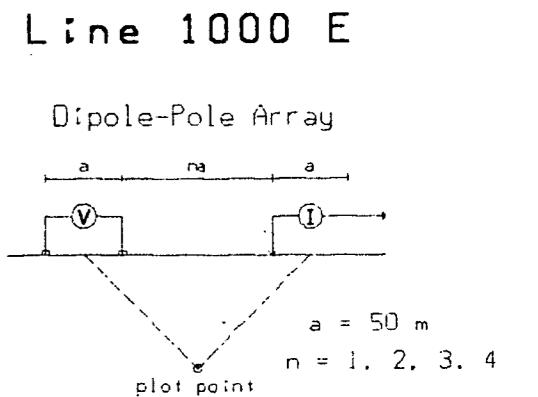
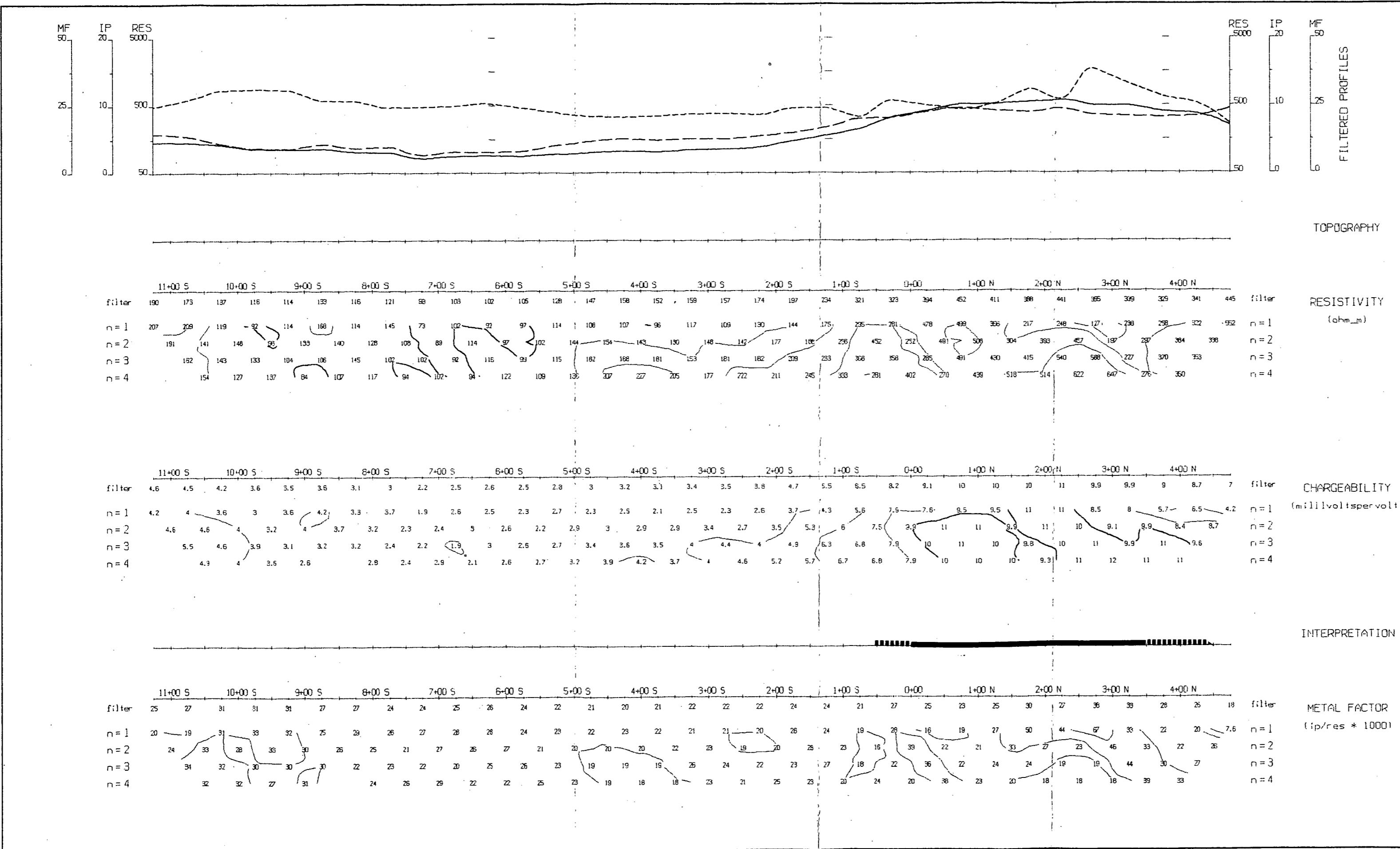












Filtered Profiles

Resistivity  
Polarization  
Metal Factor

filter \*  
filter \*\*  
filter \*\*\*  
filter \*\*\*\*

Logarithmic  
Contours  
1, 1.5, 2, 3, 5, 7.5, 10, ...

Instrument: BRGM IPS Rx HUNTEC 7.5 Kw TX

Operator: P.E.W., M.A.

#### INTERPRETATION

Well defined, strong increase in polarization with or without marked decrease in resistivity.

Fairly well defined moderate increase in polarization.

Poorly defined polarization increase.

Resistivity feature.

**EQUITY SILVER MINES LIMITED**

**INDUCED POLARIZATION SURVEY**

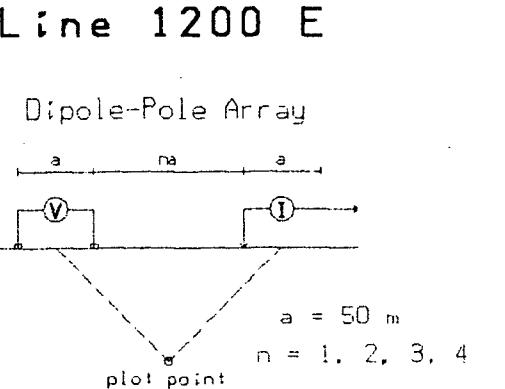
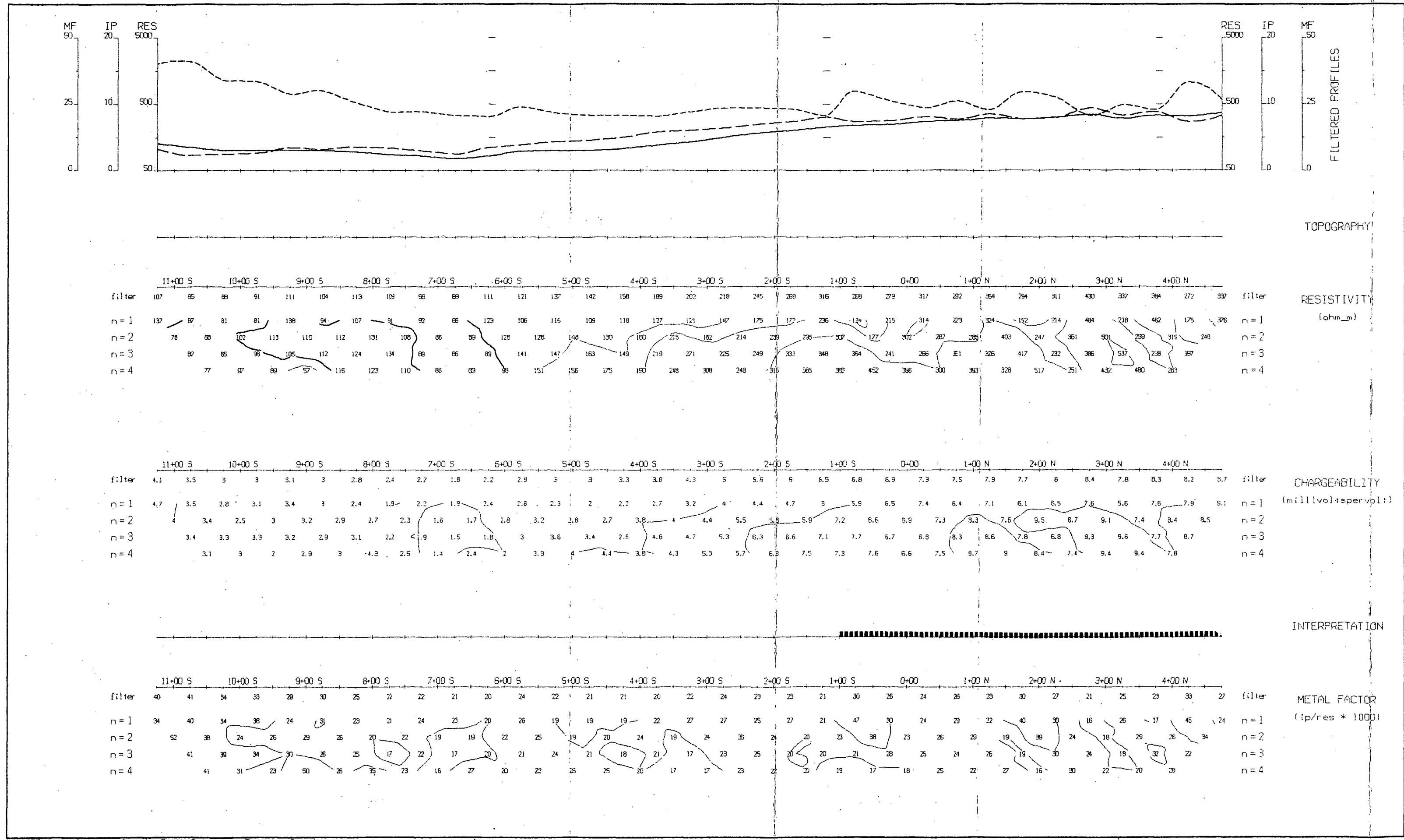
**ERIC CLAIMS**  
**HOUSTON AREA, B.C.**

Date: 90/12/11 N.T.S.: 93L/2

Scale: 1 : 5000

**20651**

**PETER E WALCOTT & ASSOC. LTD.**



#### Filtered Profiles

filter  
\*  
\* \*  
Metal Factor  
-----  
\* \* \*  
\* \* \* \*

Logarithmic  
Contours 1, 1.5, 2, 3, 5, 7.5, 10, ...

Instrument: BRGM IP6 Rx HUNTEC 7.5 Kw TX

Operator: P.E.W., M.A.

#### INTERPRETATION

Well defined, strong increase in polarization with or without marked decrease in resistivity.  
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Resistivity feature.

**EQUITY SILVER MINES LIMITED**

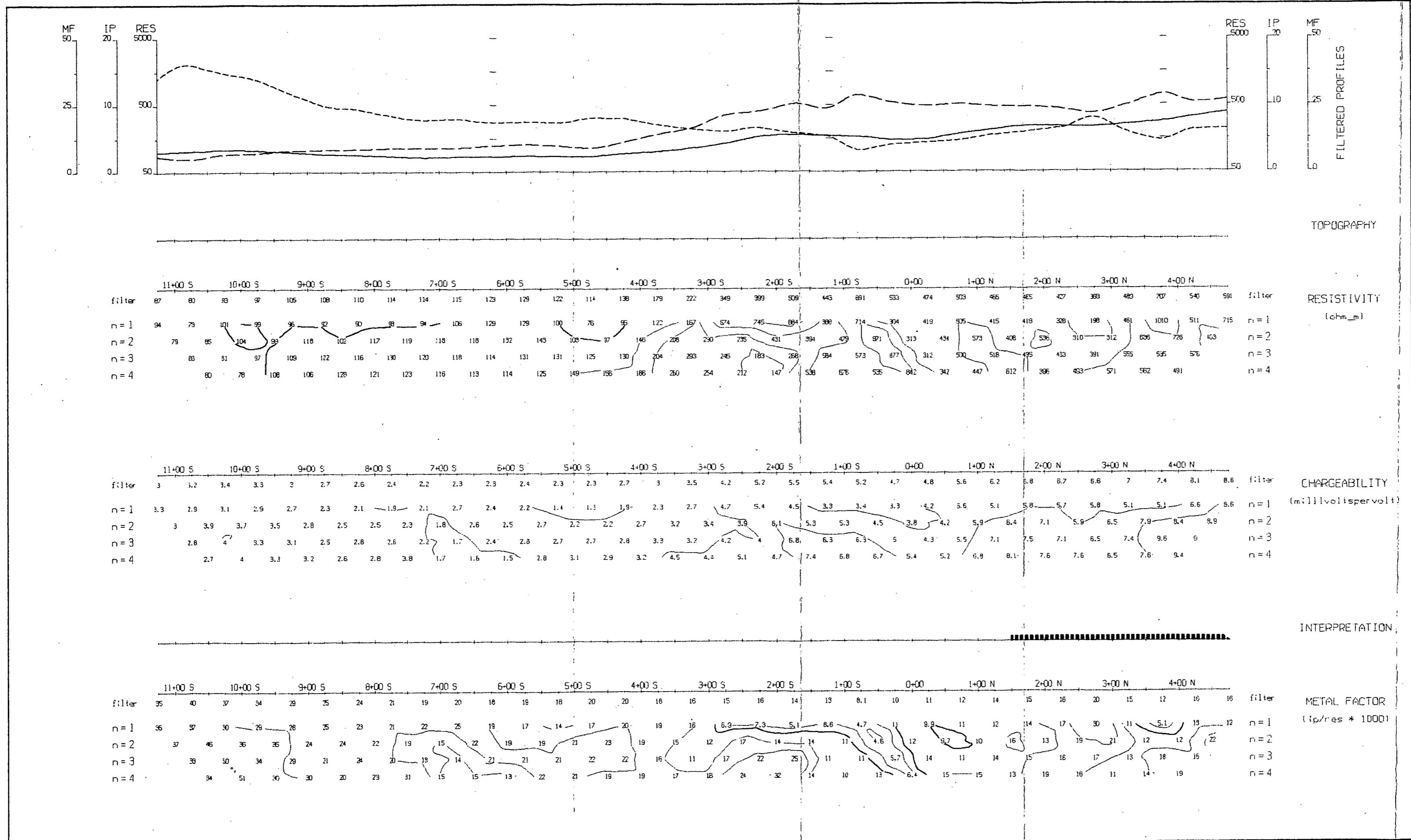
**INDUCED POLARIZATION SURVEY**

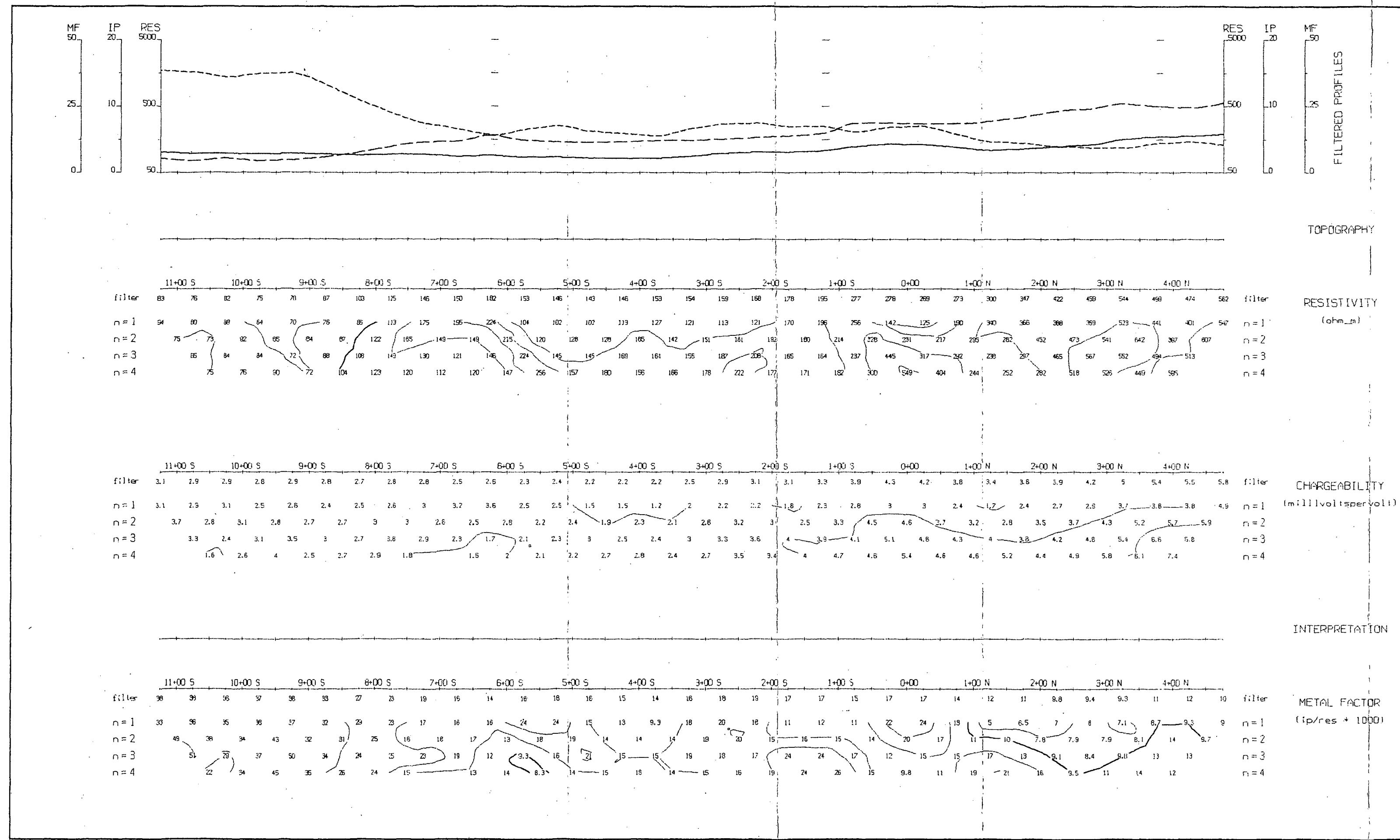
ERIC CLAIMS  
HOUSTON AREA, B.C.

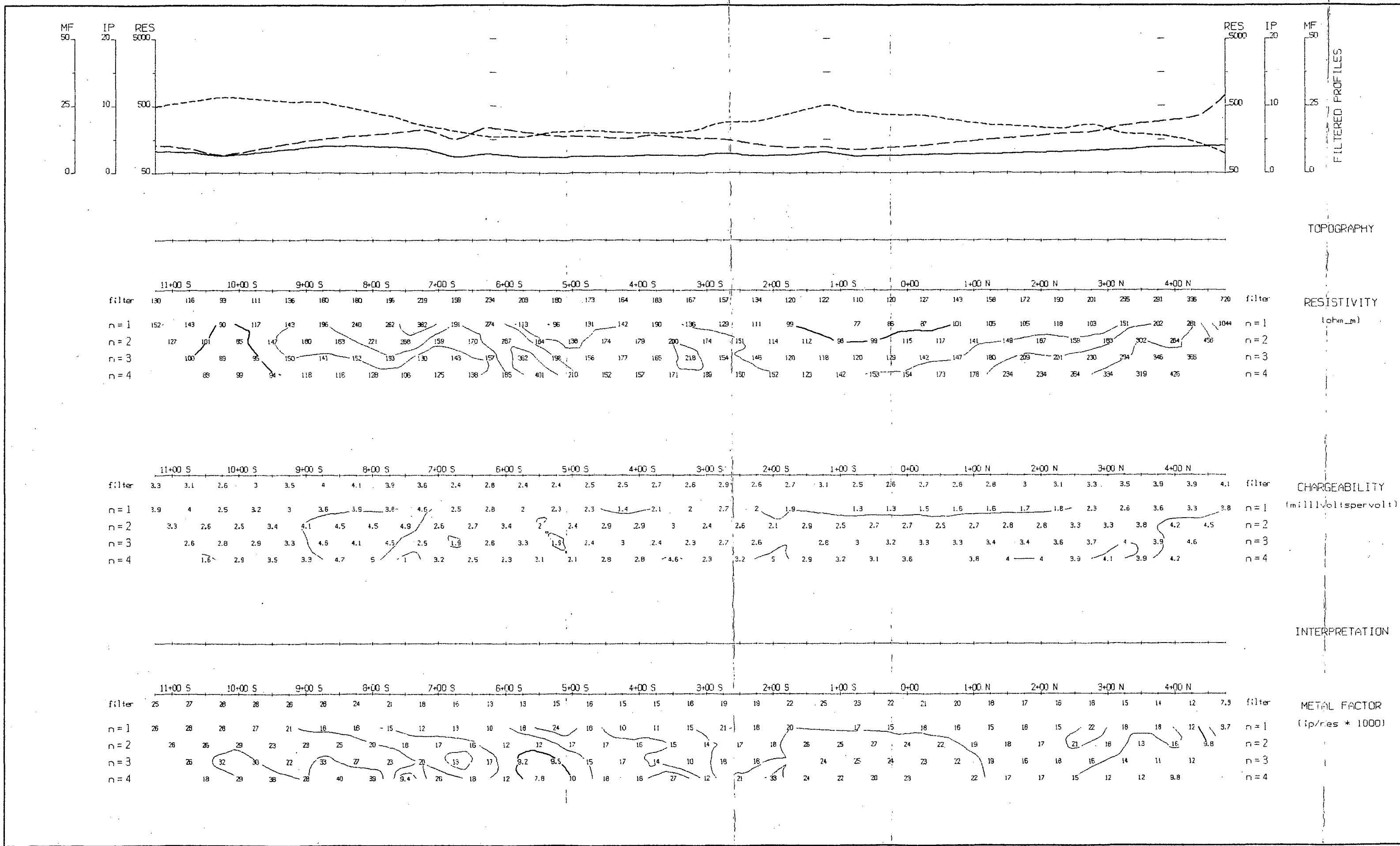
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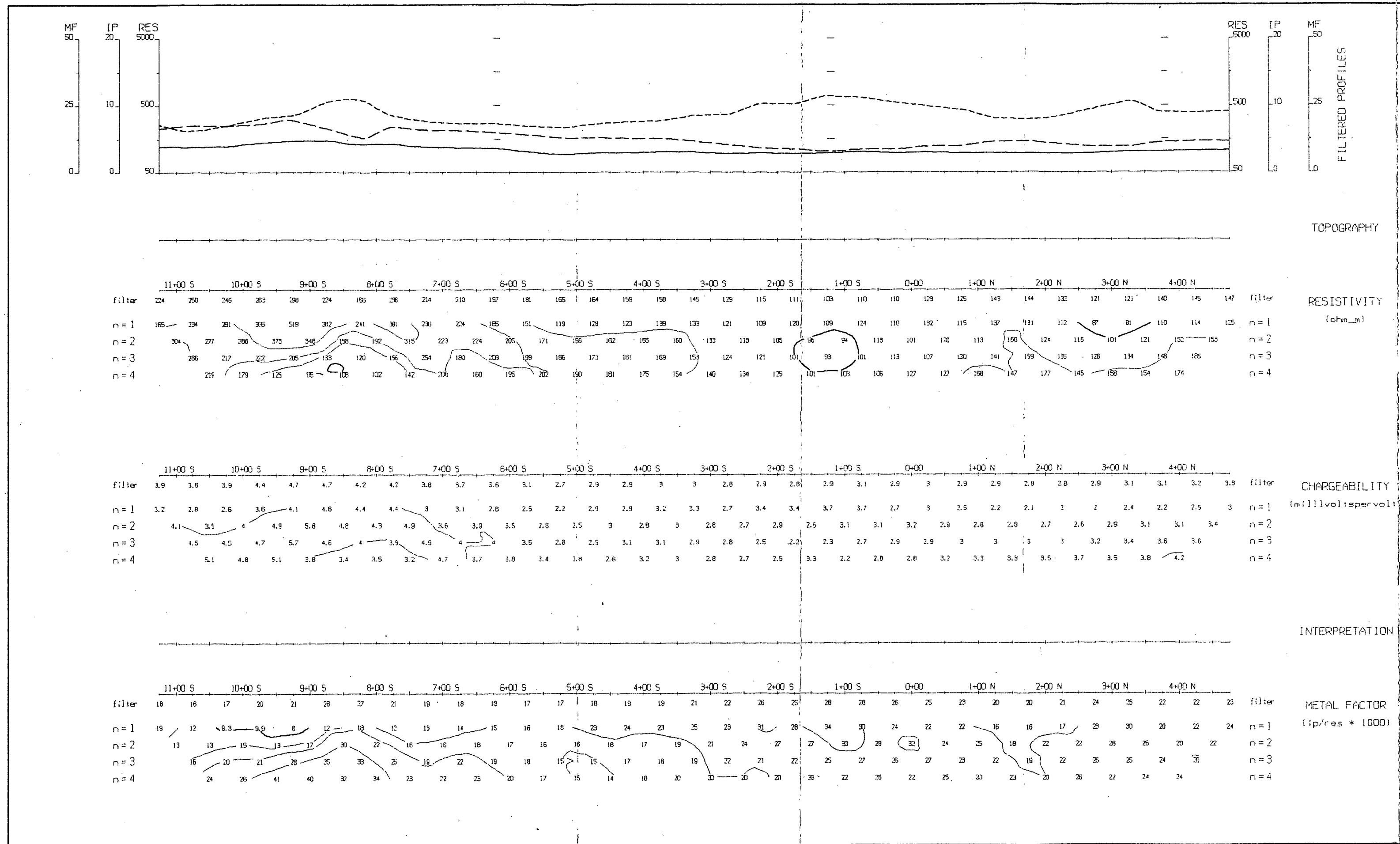
Scale: 1 : 5000 **20651**

PETER E WALCOTT & ASSOC. LTD.



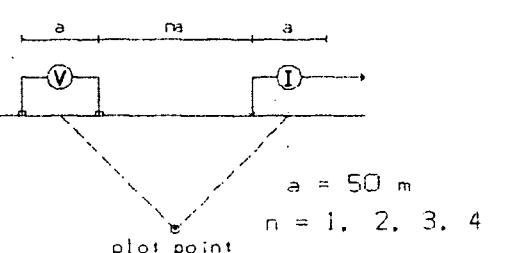






Line 2000 E

Dipole-Pole Array



Filtered Profiles

filter \*  
Resistivity \* \*  
Polarization \* \* \*  
Metal Factor \* \* \* \*

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10, ...

Instrument: BRGM IP6 Rx HUNTEC 7.5 Kw TX

Operator: P.E.W., M.A.

INTERPRETATION

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Fairly well defined moderate increase in polarization.

Poorly defined polarization increase.

Resistivity feature.

INTERPRETATION

**EQUITY SILVER MINES LIMITED**

**INDUCED POLARIZATION SURVEY**  
**ERIC CLAIMS**  
**HOUSTON AREA, B.C.**

Date: 90/08/28 N.T.S.: 93L/2

Scale: 1 : 5000 **20651**

PETER E WALCOTT & ASSOC. LTD.

