

COMINCO LTD.

EXPLORATION

WESTERN DISTRICT

NTS: 921/7

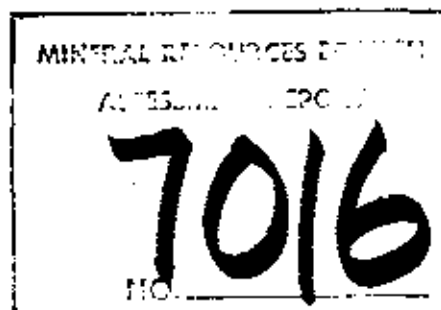
INDUCED POLARIZATION GEOPHYSICAL SURVEY
AND LINECUTTING
ON PORTIONS OF THE
HELMER PROPERTY

Merritt Area, B.C., Nicola Mining Division

Latitude: $50^{\circ}20'N$; Longitude: $120^{\circ}40'W$

Work Performed: June 27 - July 4, 1978

On Claims: HEL 3, 4



OCTOBER 1978

ALAN SCOTT

TABLE OF CONTENTS

INTRODUCTION	1
INDUCED POLARIZATION SURVEY	1
DESCRIPTION OF RESULTS	2
CONCLUSIONS	2

ATTACHMENTS

Plate 136-78-1	General Location Map
2	Hel Claims and Grid Location Map
3 to 6	Induced Polarization and Apparent Resistivity Pseudo Sections
Appendix I	Statement
II	Cost Statement
III	Certification

INTRODUCTION

Between June 27 to July 4, 1978, a Cominco geophysical crew completed some 7.2 line kilometers of induced polarization survey over portions of the Hel mineral claims. The same crew cut and chained the lines necessary for the survey.

The Helmer property is located some 24 kilometers NNE of Merritt, B.C., as indicated on the location map, plate 136-78-1. Access to the claims can be gained via the Swakum Mt. Road which runs north from the village of Nicola. The location of the geophysics grid in relation to the Hel claims is indicated on plate 136-78-2.

This report describes the procedures used on the induced polarization survey, presents the data collected, and discusses the results.

INDUCED POLARIZATION SURVEY

G.J. Niemeyer, geophysical technician, was the party chief/receiver operator on the survey.

A Scintrex IPR-8 receiver, in combination with a Huntco 7.5 KW motor generator/transmitter were used on the survey. This equipment operates in the time domain, employing a 2 second current on/2 second current off alternating square wave. The chargeability (IP) values plotted are the M_{232} values, and the units are millivolts/volt. To convert to the more common millisecond value (such as would be obtained with the older model IPR-7), the numbers should be multiplied by 0.7, for a "typical" decay curve. For a more detailed discussion of this instrument, the reader is referred to the Scintrex manual for the IPR-8.

The pole dipole electrode array was used on the survey, with an "a" spacing of 75 meters and "n" separations of 1, 2, 3 and 4. The current electrode was kept to the east of the potential dipole.

The apparent resistivity data is given in units of ohm meters. It was calculated from the relation:

$$\text{apparent resistivity} = (V/I) \cdot K,$$

where V is the voltage across the potential measuring dipole

due to a current I, and K is a constant dependant upon the "a" spacing and "n" separation.

The chargeability and apparent resistivity values are plotted in the standard pseudo section format as accompanying plates 136-78-3 to 136-78-6.

DESCRIPTION OF RESULTS

Four lines were cut, chained and IP surveyed, namely 0+00, 2+50N, 5+00N, and 7+50N. The highest chargeability value of the survey was 41 mv/v (n=1) at 480E on line 500N. This fairly strong anomaly lies in a much broader zone of moderately high chargeability (greater than 20 mv/v), which extends from 75W to 450E. This broad zone, which appears to consist of at least two sources, was also detected on line 750N from 300W to 300E. Weaker anomalies were detected at the larger n separations, on lines 0+00 and 250N.

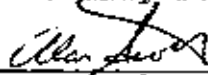
CONCLUSIONS

Portions of the Hel claims were surveyed by multiseparation time domain IP in the summer of 1978.

A moderately anomalous zone of high chargeability was detected at the near separations on lines 5+00 and 7+50N. The zone probably consists of at least two sources. Weakly anomalous zones, at the further separations, were detected on lines 0+00 and 2+50N.

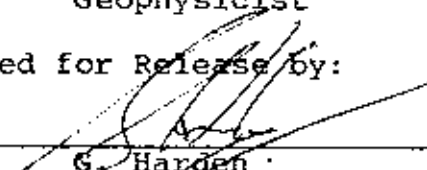
Correlation of this data to geological and geochemical information may indicate if further work is required.

Respectfully Submitted:



Alan Scott
Geophysicist

Endorsed for Release by:



G. Harden
Manager, Exploration
Western District

ARS/deb
23 October 1978
Distribution:
Mining Recorder (2)
Western District (1)
Geophysics File (1)

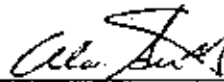
APPENDIX I

IN THE MATTER OF THE B.C. MINERAL ACT
AND IN THE MATTER OF A GEOPHYSICAL PROGRAMME
CARRIED OUT ON PORTIONS OF THE HEL MINERAL CLAIMS
ON THE HELMER PROPERTY
LOCATED 24 KM NNE OF MERRITT IN THE NICOLA MINING DIVISION
OF THE PROVINCE OF BRITISH COLUMBIA MORE PARTICULARY
N.T.S. 921/7

S T A T E M E N T

I, ALAN SCOTT, OF THE CITY OF VANCOUVER IN THE PROVINCE OF
BRITISH COLUMBIA, MAKE OATH AND SAY: -

1. THAT I AM EMPLOYED AS A GEOPHYSICIST BY COMINCO LTD.
AND, AS SUCH, HAVE A PERSONAL KNOWLEDGE OF THE FACTS
TO WHICH I HEREINAFTER DEPOSE;
2. THAT ANNEXED HERETO AND MARKED AS "APPENDIX II" TO
THIS STATEMENT IS A TRUE COPY OF EXPENDITURES INCURRED
ON GEOPHYSICAL SURVEY AND LINECUTTING ON THE HEL
MINERAL CLAIMS;
3. THAT THE SAID EXPENDITURES WERE INCURRED BETWEEN THE
27th OF JUNE AND THE 4th OF JULY, 1978, FOR THE PURPOSE
OF MINERAL EXPLORATION OF THE ABOVE NOTED CLAIMS.



Alan Scott
Geophysicist

ARS/deb
23 October 1978

APPENDIX II

HEL CLAIMS

STATEMENT OF EXPENDITURES

(Linecutting, IP Survey)

SALARIES:

G.J. Niemeyer, technician	June 27-July 4		
	8 days @ \$120	\$ 960	
I. Cummings, helper	June 27-July 4		
	8 days @ \$ 82	\$ 656	
C. LaPrairie, helper	June 27-July 4		
	8 days @ \$ 82	\$ 656	
R. Grant, helper	June 27-July 4		
	8 days @ \$ 82	\$ 656	
J.M. Niemeyer, helper	July 1-July 4		
	4 days @ \$ 82	\$ 328	
R.U. Bruaset, geologist	June 28, 29		
	2 days @ \$130	\$ 260	
			<u>\$ 3,516.00</u>

MISCELLANEOUS:

Food, lodging, gas, consumables \$ 1,409.25

OPERATING CHARGES:

(Towards report, drafting, supervision)
4 days IP survey @ \$175 \$ 700.00

EQUIPMENT RENTALS AND CHARGES:

4 days IP @ \$282	\$1,128.00	
4 days truck rental only @ \$30	\$ 120.00	
		<u>\$ 1,248.00</u>

\$ 6,873.25

ARS/deb
23 October 1978




APPENDIX III

C E R T I F I C A T I O N

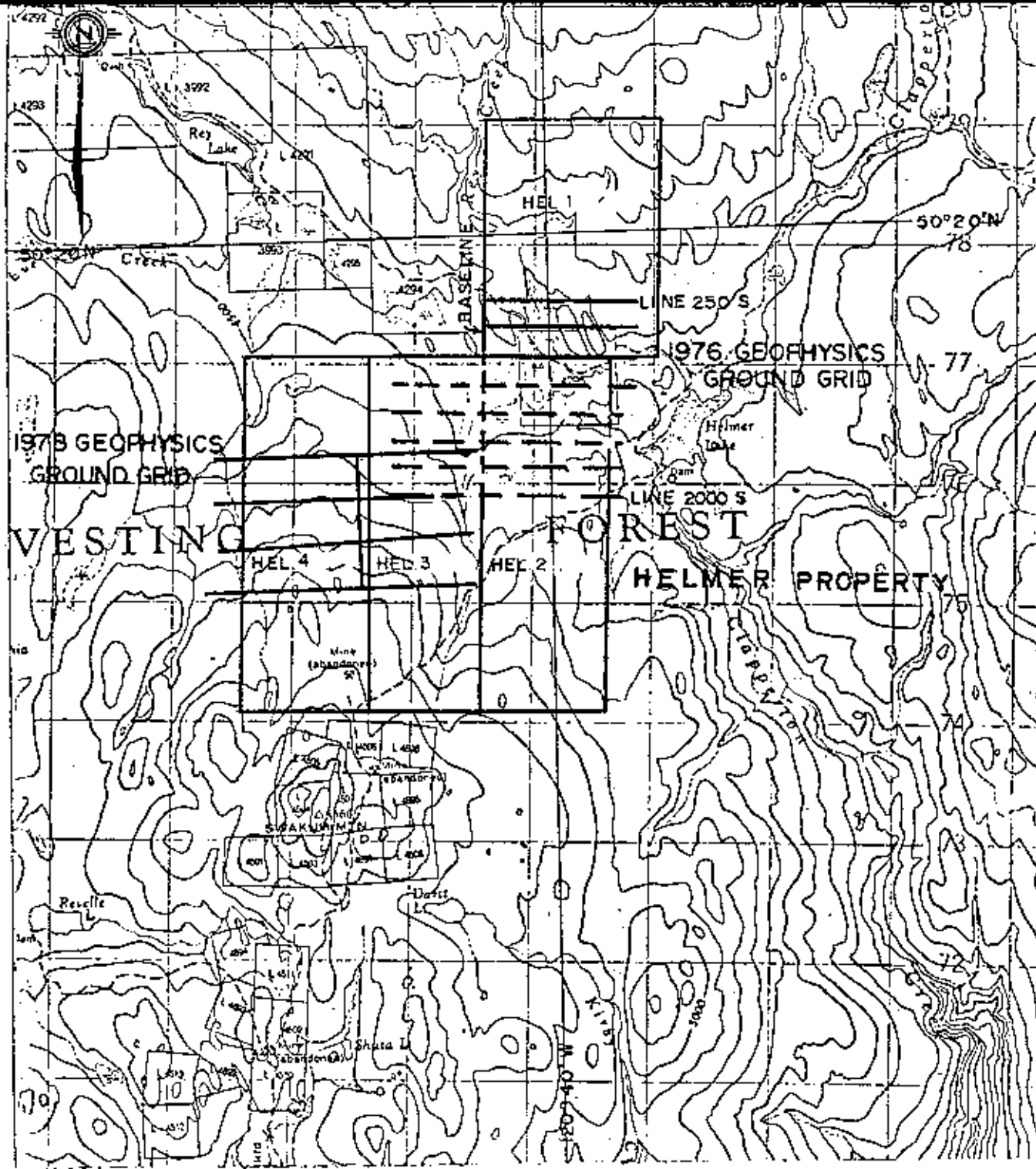
I, Alan Scott, of 4013 West 14th Avenue, in the city of Vancouver, in the Province of British Columbia, do hereby certify that: -

1. I graduated from the University of British Columbia in 1970 with a B.Sc. in Geophysics.
2. I am a member of the Association of Professional Engineers of the Province of Saskatchewan, the Society of Exploration Geophysicists of America, and the British Columbia Geophysical Society.
3. I have been practising my profession for the past eight years.



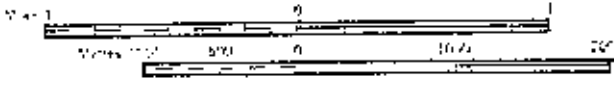
Alan Scott
Geophysicist

ARS/deb
23 October 1978



MAMIT LAKE
 KAMLOOPS DIVISION OF YALE DISTRICT
 BRITISH COLUMBIA

SCALE 1:50,000 ÉCHELLE



N.T.S.
 92-1-7

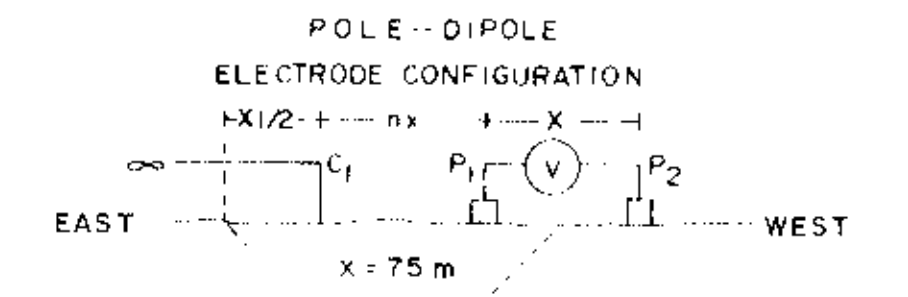
Drawn by:	Traced by:
Revised by: _____ Date: _____	Revised by: _____ Date: _____

HELMER PROPERTY LOCATION MAP

Scale: AS SHOWN Date: 1976 Plate: 136-78-1

COMINCO LTD.
 HELMER PROPERTY
 NICOLA M.D., B.C.

LINE NO. 0+00.B1



PLOTTING POINT
 n=1, 2, 3, 4
 CURRENT ELECTRODE EAST OF POTENTIAL DIPOLE

DATE SURVEYED JULY 1, 1978

CONTOUR INTERVALS:
 APP. RES. -- 200 Ω m
 APP. CHARG. -- 5.0 MV/V

APPROVED *[Signature]*

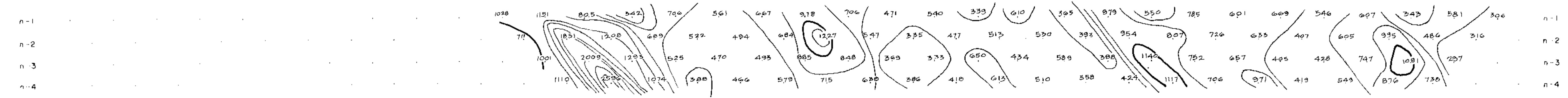
DATE MINERAL SURVEY ACT AS
 TRANSMITTER -- HUNTEC 7.5 Kw
 RECEIVER -- IPR 8

1016

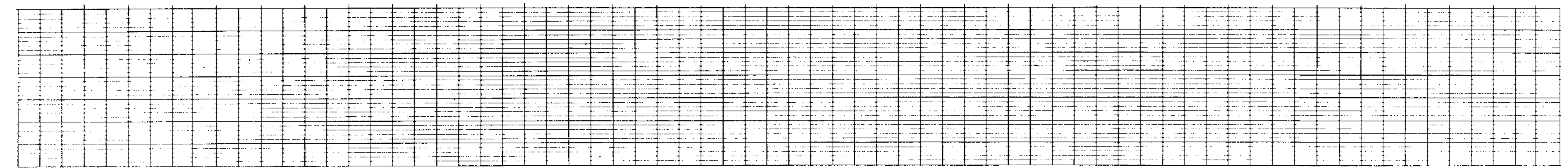
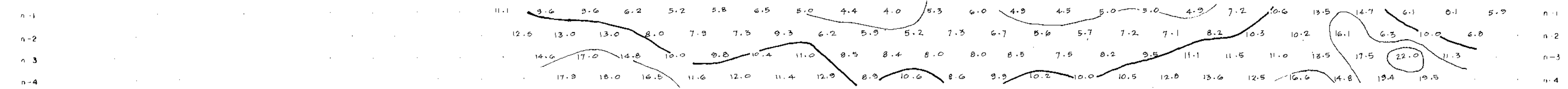
INDUCED POLARIZATION AND RESISTIVITY SURVEY
 SURVEYED BY COMINCO LTD. EXPLORATION DIVISION

975W 900W 825W 750W 675W 600W 525W 450W 375W 300W 225W 150W 75W B L 75E 150E 225E 300E 375E 450E 525E 600E 675E 750E 825E 900E

OUTCROP



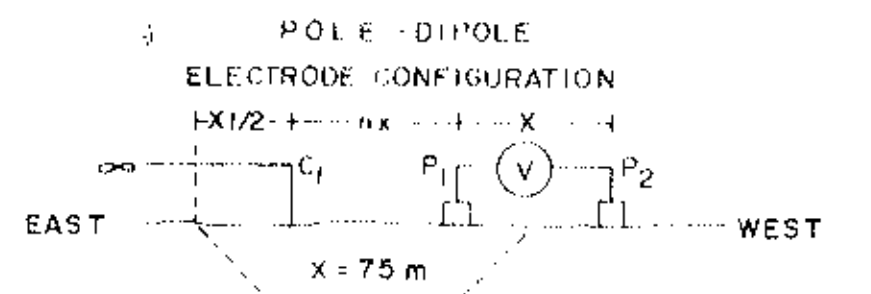
975W 900W 825W 750W 675W 600W 525W 450W 375W 300W 225W 150W 75W B L 75E 150E 225E 300E 375E 450E 525E 600E 675E 750E 825E 900E



LINE 0+00 B1

COMINCO LTD. HELMER PROPERTY NICOLA M.D., B.C.

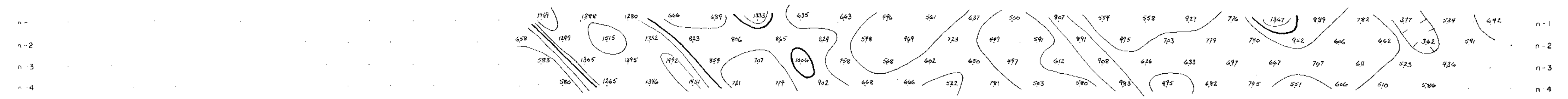
LINE NO. 2+50N



PLOTTING POINT
n = 1, 2, 3, 4
CURRENT ELECTRODE EAST OF POTENTIAL DIPOLE

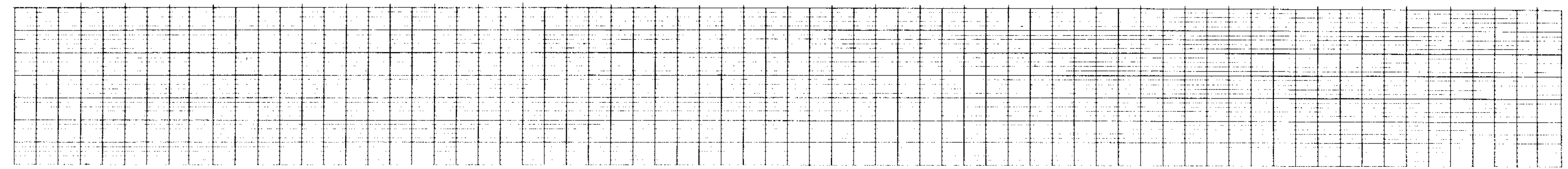
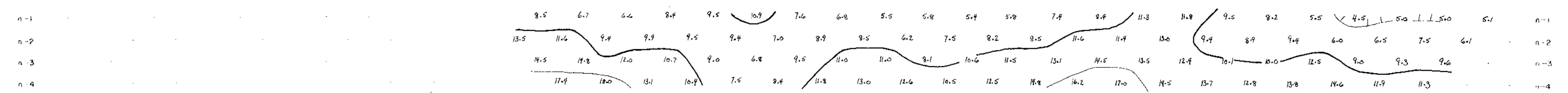
Apparent Resistivity ρ_a

975W 900W 825W 750W 675W 600W 525W 450W 375W 300W 225W 150W 75W B L 75E 150E 225E 300E 375E 450E 525E 600E 675E 750E 825E 900E



Apparent Chargeability M_a

975W 900W 825W 750W 675W 600W 525W 450W 375W 300W 225W 150W 75W B L 75E 150E 225E 300E 375E 450E 525E 600E 675E 750E 825E 900E



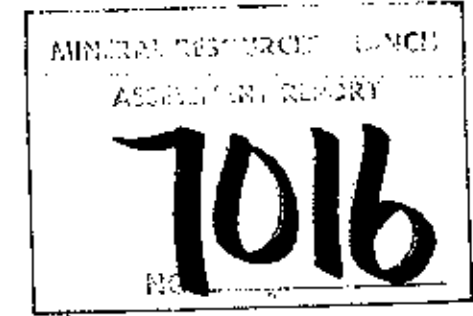
DATE SURVEYED JULY 2, 1978

CONTOUR INTERVALS:
APP. RES. --- 200 Ω m
APP. CHARG. --- 5.0 Mv/V

APPROVED *[Signature]*

DATE

TRANSMITTER --- HUNTEC 7.5 kw
RECEIVER --- IPR 8

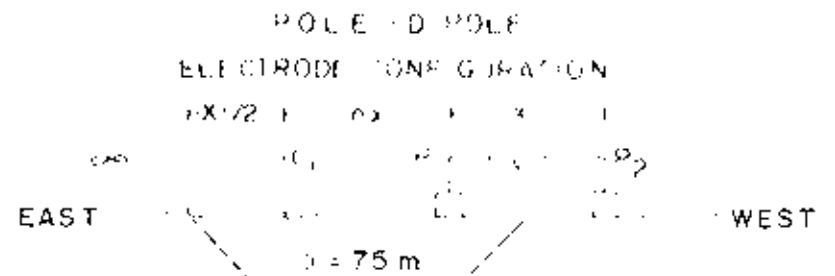


INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD., EXPLORATION DIVISION

LINE NO. 2+50N

COMINCO LTD. HELMER PROPERTY NICOLA M.D., B.C.

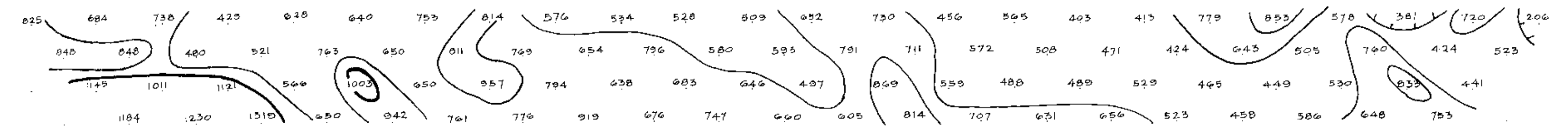
LINE NO. 5+00N



CURRENT ELECTRODES EAST OF POLE POINT 75m

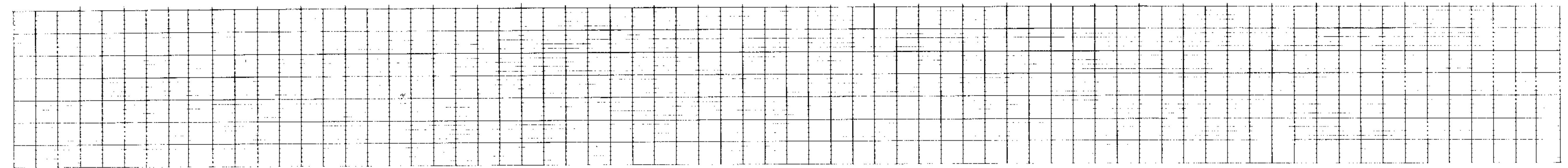
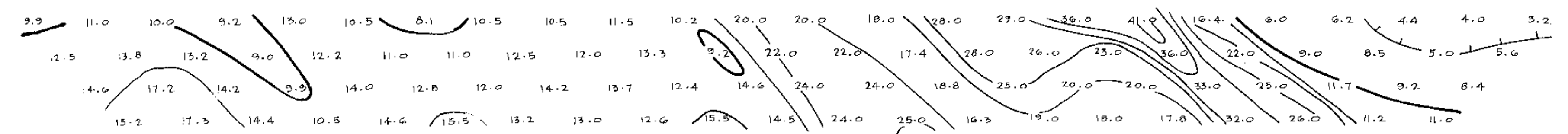
975W 900W 825W 750W 675W 600W 525W 450W 375W 300W 225W 150W 75W B L 75E 150E 225E 300E 375E 450E 525E 600E 675E 750E 825E 900E

Apparent Resistivity ρ_a



975W 900W 825W 750W 675W 600W 525W 450W 375W 300W 225W 150W 75W B L 75E 150E 225E 300E 375E 450E 525E 600E 675E 750E 825E 900E

Apparent Chargeability M_a



DATE SURVEYED JULY 4, 1978

CONTOUR INTERVALS
APP. RES 200 Ω m
APP. CHARG. 5.0 MV/V

APPROVED *BA*

TRANSMITTER - HUNTEC 7.5 KW
RECEIVER - IPR 8

DATE: _____
 IND. POLARIZATION SURVEY
 NO. **7016**

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD. EXPLORATION DIVISION

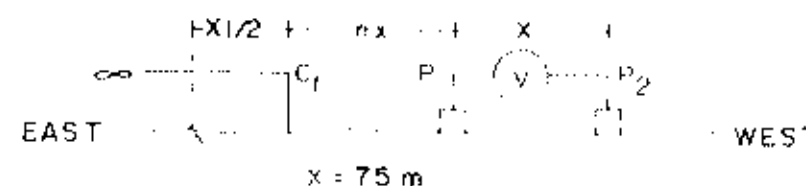
LINE NO. 5+00N

COMINCO LTD. HELMER PROPERTY NICOLA M.D., B.C.

LINE NO. 7+50 N

POLE-DIPOLE

ELECTRODE CONFIGURATION



PLOTTING POINTS
n-1, 2, 3, 4

CURRENT ELECTRODE EAST OF POTENTIAL DIPOLE

DATE SURVEYED JULY 3, 1978

CONTOUR INTERVALS:
APP. RES. — 200 Ω m
APP. CHARG. — 5.0 MV/V

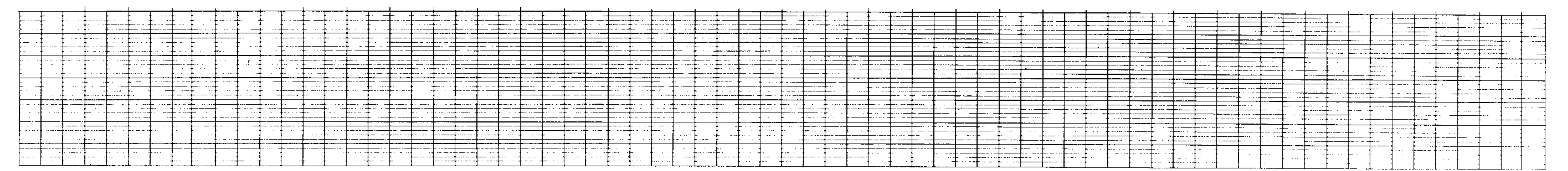
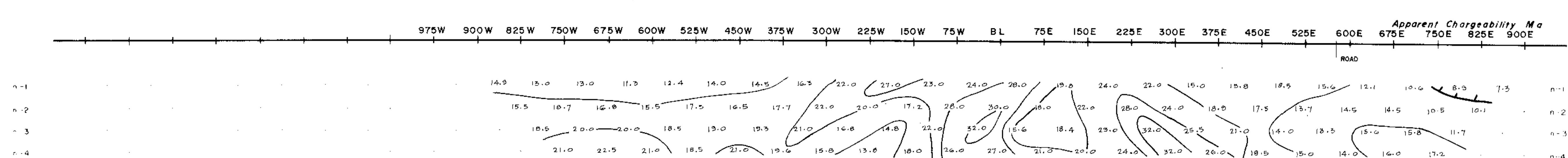
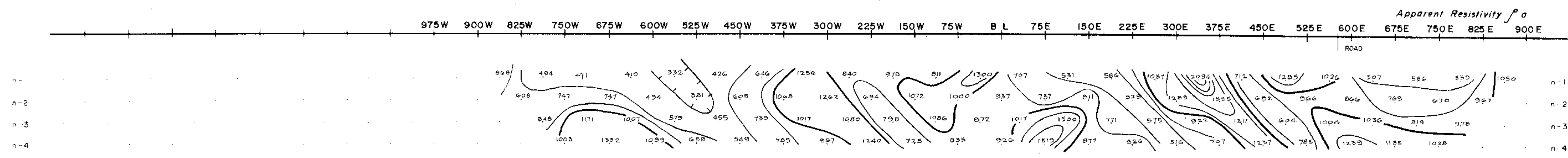
APPROVED *GA*

DATE

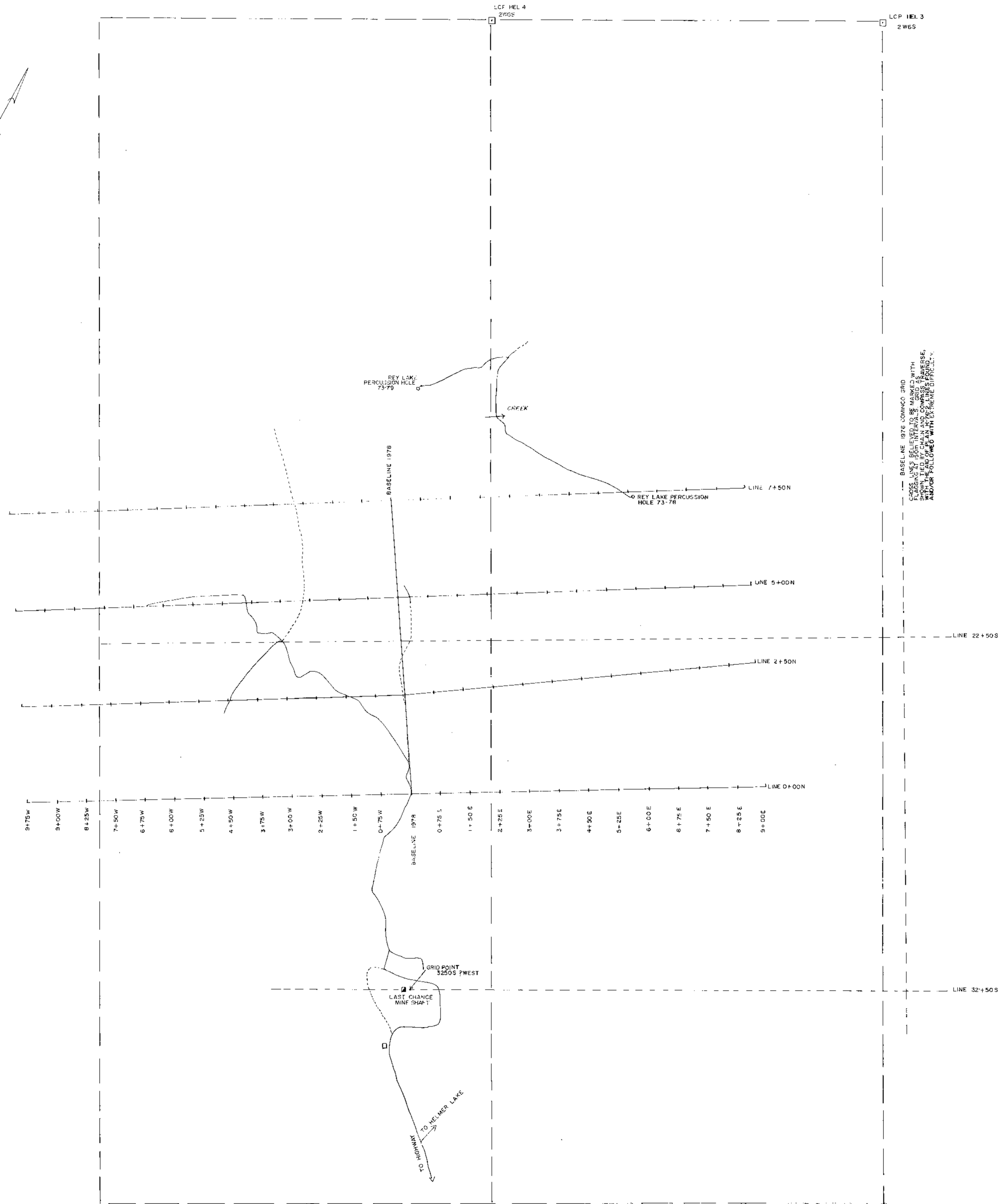
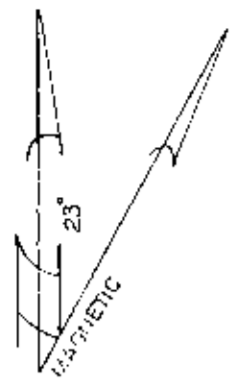
TRANSMITTER — HUNTEC 7.5 KW
RECEIVER — IPR 8

7016

INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD. EXPLORATION DIVISION

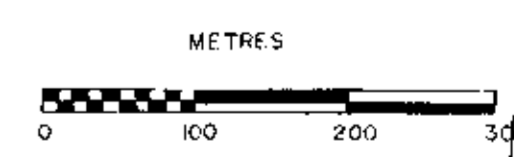


LINE 7+50 N



BASELINE 1976 COMINCO GRID
 FLAGGED BY JOHN INTERLAKES, M.D. 2/2
 WITH THE HELP OF CHAIN AND COMPASS SURVEY.
 AND/OR FOLLOWED WITH EXTREME DIFFICULTY.

- ROAD - FOUR WHEEL DRIVE OVER BULLDOZER TRAIL
- PATH - OLD OR CUT WITH CHAIN SAW
- OLD MINE SHAFT (LAST CHANCE)
- 1978 GEOPHYSICS GROUND GRID
- 1976 COMINCO GRID
- LEGAL CLAIM POST
- APPROXIMATE LOCATION OF THE CLAIM BOUNDARY



MINERAL CLAIM REGISTRY
 7016

HELMER PROPERTY				NTS 92-1-7E
Drawn by:		Traced by:		CLAIM MAP <i>W. J. ...</i>
Revised by:	Date:	Revised by:	Date:	
NICOLA M.D., B.C.				Scale: 1:25000 Date: OCT. 1978 Plate: 136-78-2