

COMINCO LTD. '77-#99-#6224

EXPLORATION
NTS: 92I/9W

WESTERN DISTRICT
22 MARCH 1977

INDUCED POLARIZATION & MAGNETIC SURVEY
AND CLAIMS

KAMLOOPS MINING DISTRICT
BRITISH COLUMBIA

LATITUDE: 50°34'N LONGITUDE: 120°35'W

WORK PERFORMED: SEPTEMBER 14-26, 1976

REPORT BY: D.P. OLSON & J. KLEIN

1 OF 2
PART
1224

6224

COMINCO LTD.

EXPLORATION

NTS: 92I/9W

WESTERN DISTRICT

22 MARCH 1977

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AND

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ON CLAIMS

AND 1 & 3

D.P. OLSON
J. KLEIN

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT

NO. _____

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ATTACHMENTS

PLATES*

- 110-76-1 - General Location Map, AND Claims.
- 2 - AND Claim Map
- 3 - Magnetometer Data Values 1"=1000 ft.
- 4 - a) Magnetic Contour Map 1"=1000 ft.
 Contour Interval 500 gammas.

- 6 to 17 - IP Pseudo-sections of Apparent Charge-
 ability and Apparent Resistivity.

* NOTE: For brevity, all references to plates in this report do not include the prefix "110-76-", although this prefix is included on all plates as part of the plate number.

COMINCO LTD.

EXPLORATION

WESTERN DISTRICT
24 MARCH 1977

INDUCED POLARIZATION

SURVEY

AND CLAIMS

SUMMARY

An induced polarization and magnetometer survey was carried out on the AND claim group, about 12 miles south of the City of Kamloops, B.C., during the period September 14 to 26, 1976.

The survey outlined different background levels suggesting different rock types. No anomalous zones were detected.

INTRODUCTION AND GEOLOGY

The AND claim group, consisting of 10 continuous claims (100 units), covers the southern end of the Iron Mask batholith, which is centered about six kilometers southwest of the City of Kamloops, (Plate 1). This upper Triassic pluton intrudes Nicola Group andesite and basaltic flows, breccias and tuffs. The Iron Mask pluton itself strikes northwestward and lies between 120°16'W and 120°40'W latitude. It comprises successively emplaced units ranging in composition from basic to moderately alkalic. In the vicinity of the AND claims, the western half of the pluton is covered by flat lying Eocene, Kamloops volcanics. The eastern portion, covered by a variable amount of glacial overburden, consists of Cherry Creek monzonite (U. Triassic) and Nicola volcanics.

The present IP survey of 19.5 line-kilometers employed an inline pole-dipole array with the receiver dipole (P1-P2) to the west of the moving current electrode (C₁). A basic separation of 92m (300 ft.) was used with "n" values of 1, 2, 3, and 4. The lines were spaced generally 122m (400 ft.) apart and ran due west from a N-S baseline 1460m (4800 ft.) long (Plate 2).

A magnetometer survey was conducted over the same grid, with two lines (8+00S and 20+00N) extended to the west to cover the projected extension of the Iron Mask gabbros under the Kamloops volcanics.

2.

GEOPHYSICAL SURVEYS

The surveys were carried out by D.P. Olson, geophysicist; D.M. Carr, technician, J. Faubert, N.E. Kaniak and R.M. Klutz, assistants, during the period September 14-26, 1976.

The grid baseline is shown on all plates within this report as running true N-S, where (since the production of these plates) it has been shown to lie approximately N4⁰W. With the lines still running true E-W, this gives the grid a slight counterclockwise skewness, which is not indicated on the plates accompanying this report. All data on plates in this report is plotted at its correct position along the line as measured from the baseline.

Magnetics

A Scintrex MP-2 proton precession magnetometer with a scale sensitivity of 1 gamma was used. Diurnal and instrument drift were checked at regular time intervals by returning to earlier established base stations. Basic station spacing was 50 feet (15m). The data is presented on Plate 3 and is shown contoured on Plate 4, with a 500 gamma contour interval. A total of 22.3 line kilometers of magnetic data was collected.

Induced Polarization

The equipment used for this survey consisted of a Huntec 7.5 KW time domain transmitter and both a Huntec Mark III time domain receiver and a Newmont type IPR-7 time domain receiver. The transmitter was used in a standard 2 second on an 2 second off duty cycle, with a matching timing cycle in the receiver. The Mark III receiver had a basic integrating period (tp) of 60ms and a delay to start of integration (td) of 240ms.

A pole-dipole array with a = 300 feet and "n"=1,2,3, and 4 was used throughout the survey. The moving transmitter electrode (C₁) was always to the east of the potential dipole.

All four chargeability readings from each integration (M1-M4) were collected with the Mark III receiver at each station, and converted to a value in milliseconds. The results are presented as pseudosections in Plates 6 to 17.

DESCRIPTION OF RESULTS

Magnetics

The ground magnetometer survey shows a NNW-SSE, striking low approximately 2550 ft. wide centered on line 28+00N at 25+00W through to line 20+00S, where it occurs at about 7+00W.

No clearly defined contact is visible to the east of the trough axis, with the magnetic field intensity rising gradually to the east; at the baseline it is between 300 and 100 gammas above the level of the bottom of the trough. However, the west side of the trough is marked by a sharp rise of over 2000 gammas. Beyond this positive ridge to the west, the intensity decreases slowly, but maintains a value at least 1300 gammas above the trough.

The magnetometer survey suggests two and possibly three different magnetic domains. The short dashed line in Plate 4(a) shows the interpreted contact between the more gabbroic member of the Iron Mask to the west, and the monzonite unit to the east. The long-dashed line represents a vague boundary between the above monzonite and the Nicola volcanics to the east. It is clear that the volcanic units in the area, including the Nicola and Kamloops groups, do not possess strong magnetic susceptibility.

The ridge of magnetic highs on the west side of the trough probably represents a true response from the exposed gabbro of the Iron Mask. This ridge falls sharply to the west as the thick cover of Kamloops masks the response from the underlying Iron Mask.

Induced Polarization and Resistivity

The apparent resistivity data as shown in the pseudosections (Plates 6 to 17) was used to locate contacts and possible faults. This data shows clearly the difference in background resistivity between the monzonite member of the Iron Mask (more than 25 ohm-m) and the gabbro unit to the west (less than 25 ohm-m).

The Kamloops volcanics show similar low resistivity values as the gabbro.

The chargeabilities measured over the grid vary gradually but are in general less than 5 milliseconds which is considered a local background without economic significance. The slightly higher

4.

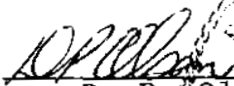
values along lines 20+00 and 28+00N don't rise enough above this background to warrant attention. Possible contacts between rock formations are interpreted and indicated on Plates 6 to 17 as follows: R_1 , R_2 etc. from resistivity, C_1 , C_2 etc. from chargeability and F_1 , F_2 etc. from all geophysical information available.

CONCLUSIONS AND RECOMMENDATIONS

The AND grid has been covered with multiseparation pole-dipole time-domain I.P. and magnetics.

No areas are recognized on the basis of the geophysics to date as having potential for hosting a porphyry copper deposit. In general, the values of chargeability obtained are considered too low to be of interest except for mapping the local structure and distribution of rock units.

No further work can be recommended on the grid based on the geophysical data.

Report by: 

D. P. Olson
Geophysicist

and: 

J. Klein, P. Eng.
Chief Geophysicist

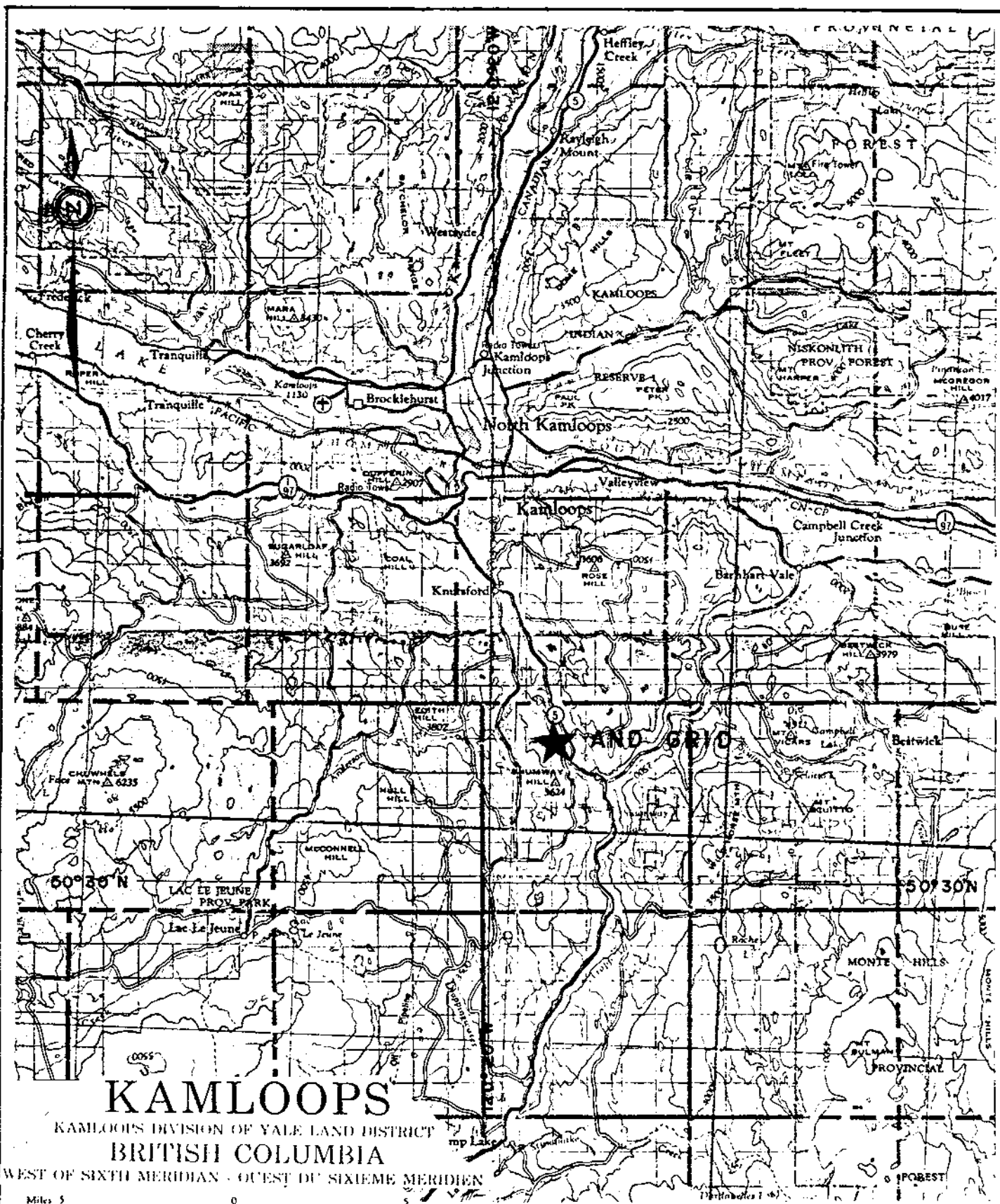
Endorsed for Release

by: 

D.W. Heddle,
Assistant Manager
Western District

Distribution:

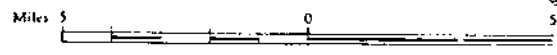
Mining Recorder (2)
Administration (1)
Western District(1)



KAMLOOPS

KAMLOOPS DIVISION OF YALE LAND DISTRICT
BRITISH COLUMBIA

WEST OF SIXTH MERIDIAN - OUEST DU SIXIEME MERIDIEN



TO ACCOMPANY A REPORT BY D. P. OLSON

6224



N.T.S.
92 I/9W

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Revised by	Date	Revised by	Date

AND GRID

LOCATION MAP

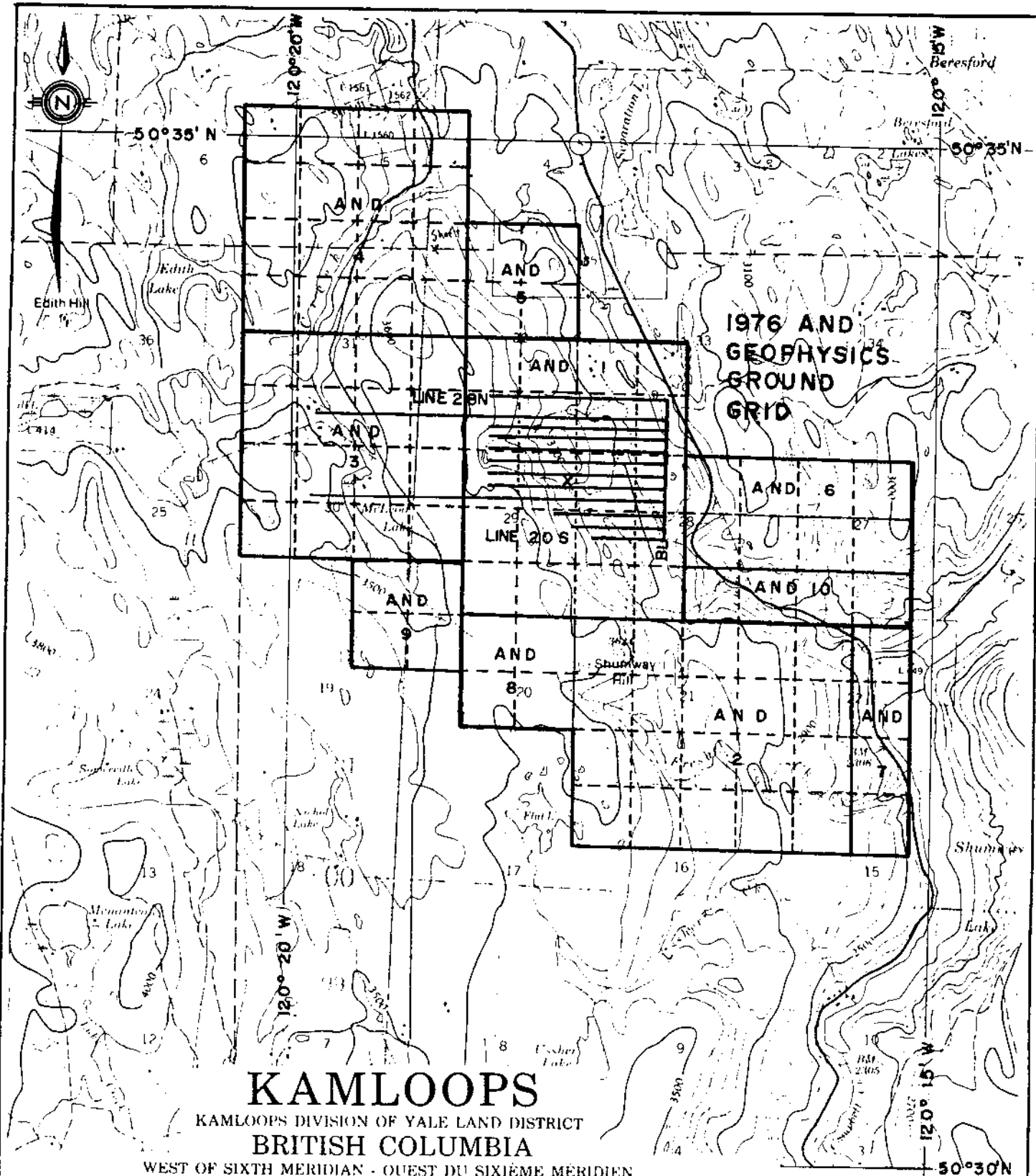
KAMLOOPS AREA, KAMLOOPS M.D., B.C.

Scale: Scale 1:250,000

Date: MARCH 1977

Plate: 110-76-1

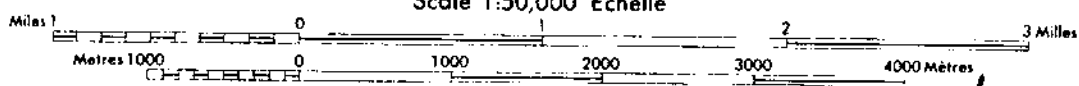
Handwritten signature: P. Olson



KAMLOOPS

KAMLOOPS DIVISION OF YALE LAND DISTRICT
BRITISH COLUMBIA

WEST OF SIXTH MERIDIAN - OUEST DU SIXIÈME MÉRIDIEN
Scale 1:50,000 Échelle



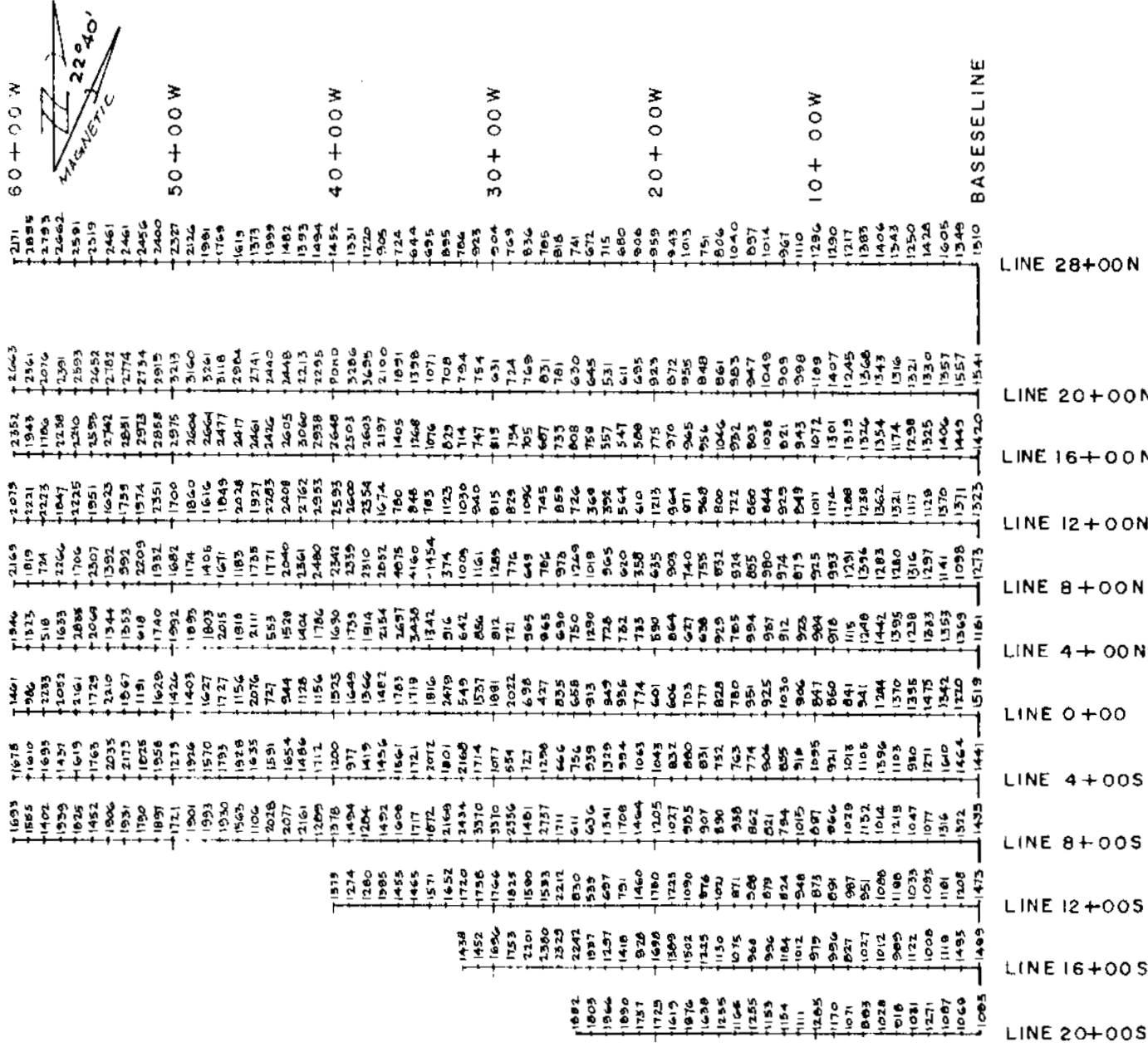
TO ACCOMPANY A REPORT BY D. P. OLSON 6224

N.T.S.
921/9W

John [Signature]

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

AND GRID
CLAIM MAP
KAMLOOPS AREA, KAMLOOPS M.D., B.C.
Scale: 1" = 50,000 Date: MARCH 1977 Plate: 110-76-2



INSTRUMENT - SCINTREX MP-2

BACKGROUND = 57,000 γ

6224

TO ACCOMPANY A REPORT BY D. P. OLSON

D.P. Olson

N.T.S.
92 I/9W

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Revised by:	Date:	Revised by:	Date:

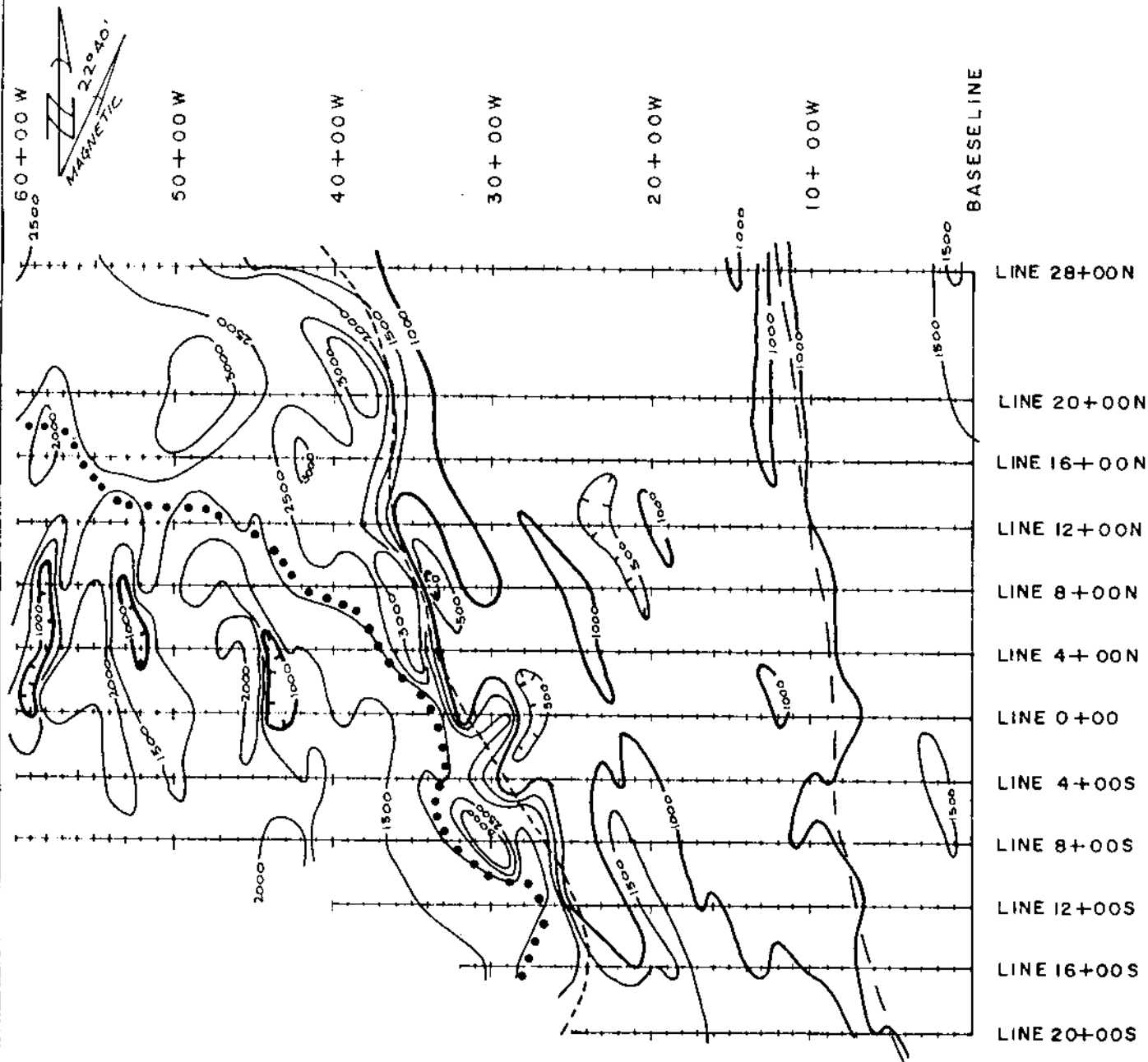
AND GRID

MAGNETOMETER SURVEY

KAMLOOPS AREA, KAMLOOPS M.D., B.C.

Scale: 1" = 1000' Date: MARCH 1977 Plate: 110-76-3

Olson



CONTOUR INTERVAL : 500 GAMMAS

INSTRUMENT - SCINTREX MP-2

- INTERPRETED CONTACT BETWEEN IRON MASK GABBRO AND MONZONITE PHASES
- APPROX. CONTACT BETWEEN IRON MASK & NICOLA VOLCANICS
- DIVISION OF KAMLOOPS VOLCANICS - THIN TO EAST - THICK TO WEST

6224



TO ACCOMPANY A REPORT BY D. P. OLSON *D.P. Olson*



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Revised by:	Date:	Revised by:	Date:

AND GRID

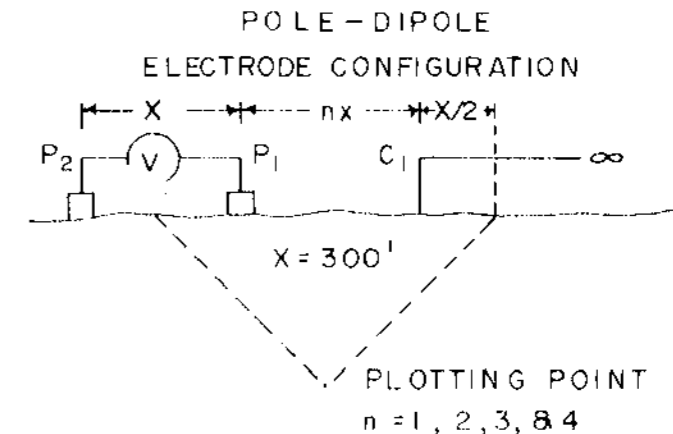
MAGNETOMETER SURVEY

KAMLOOPS AREA, KAMLOOPS M.D., B.C.

Scale: 1" = 1000' Date: MARCH 1977 Plate: 110-76-4a

COMINCO LTD. AND PROPERTY KAMLOOPS AREA, KAMLOOPS M.D., B.C.

LINE NO. 20+00 S



R — INTERPRETED CONTACT LOCATION
F — INTERPRETED FAULT LOCATION

6224

SCALE 1" = 400'

CONTOUR INTERVALS:
APP. CHARG. — 5 m s
APP. RES. — 25 Ω m

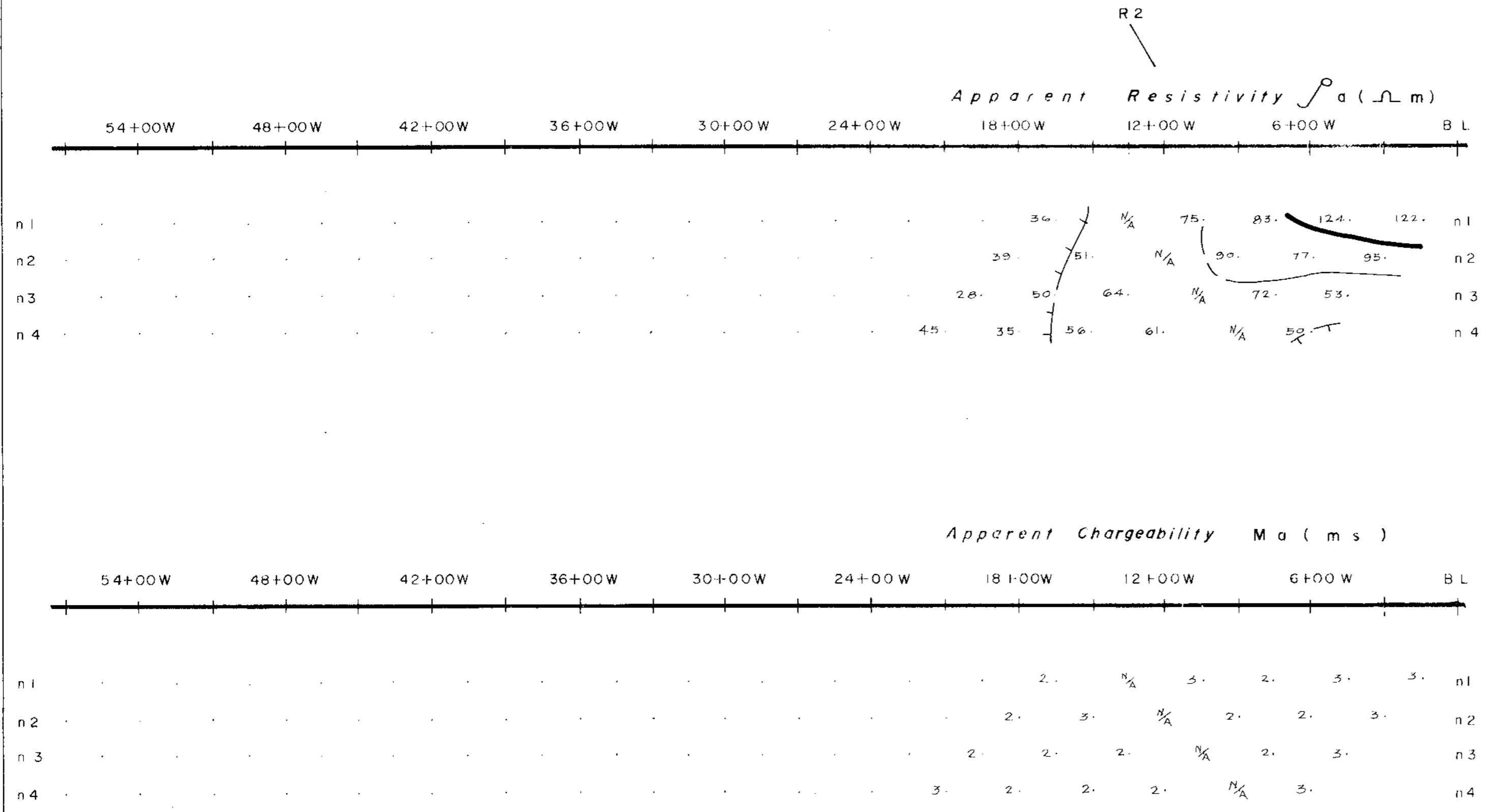
DATE SURVEYED SEPT. 1976

APPROVED

DATE

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RECEIVER HUNTEC MK III
AND NEWMONT I.P.R. 7

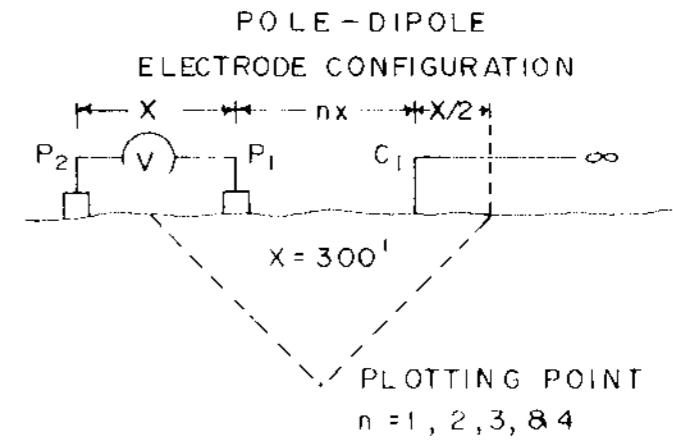
INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD., EXPLORATION DIVISION



LINE 20+00 S

COMINCO LTD. AND PROPERTY KAMLOOPS AREA, KAMLOOPS M.D., B.C.

LINE NO. 16+00 S



R - INTERPRETED CONTACT LOCATION
F - INTERPRETED FAULT LOCATION

6224

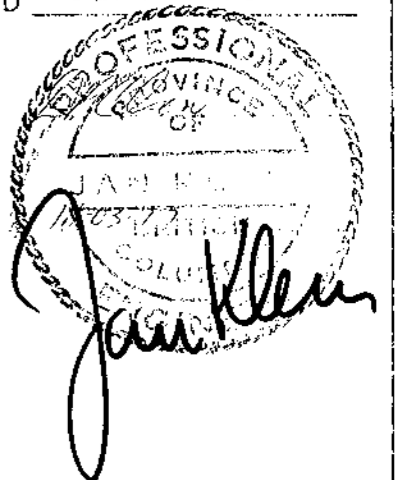
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APP. RES. --- 25 Ω m

DATE SURVEYED SEPT 1976

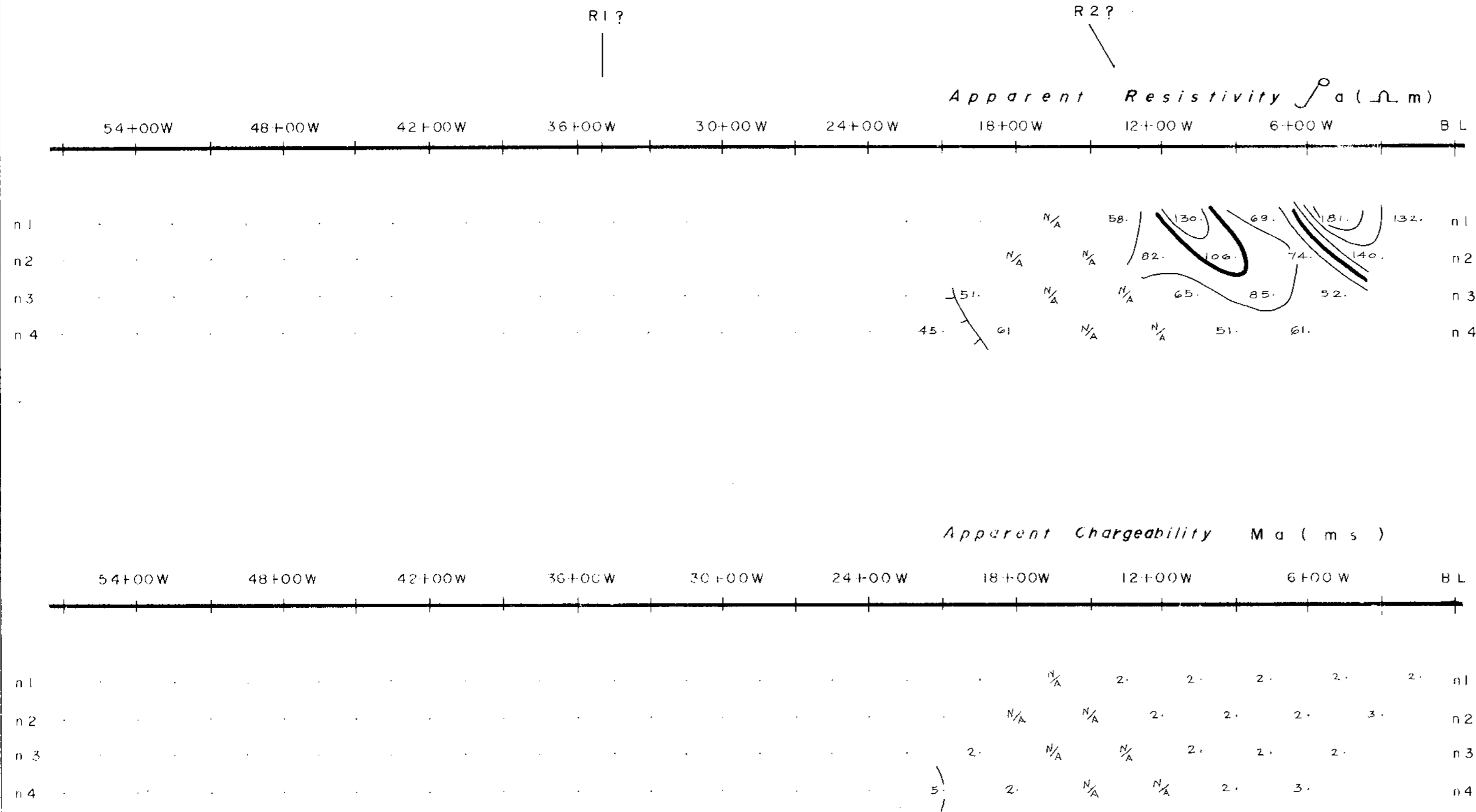
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DATE



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AND NEWMONT I.P.R. 7

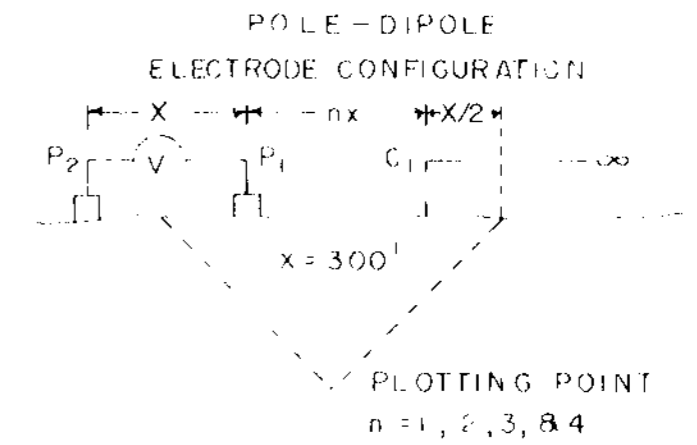
INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD., EXPLORATION DIVISION



LINE 16+00 S

COMINCO LTD. AND PROPERTY KAMLOOPS AREA, KAMLOOPS M.D., B.C.

LINE NO. 12+00 S



R - INTERPRETED CONTACT LOCATION
F - INTERPRETED FAULT LOCATION

6224

SCALE 1" = 400'

CONTOUR INTERVALS:
APP. CHARG. --- 5 ms
APP. RES --- 25 Ω m

DATE SURVEYED SEPT 1976

APPROVED *[Signature]*

DATE 18-03-77

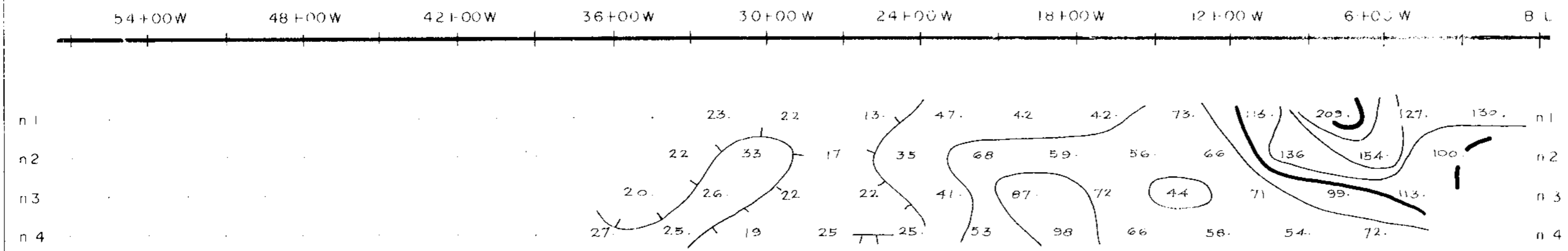
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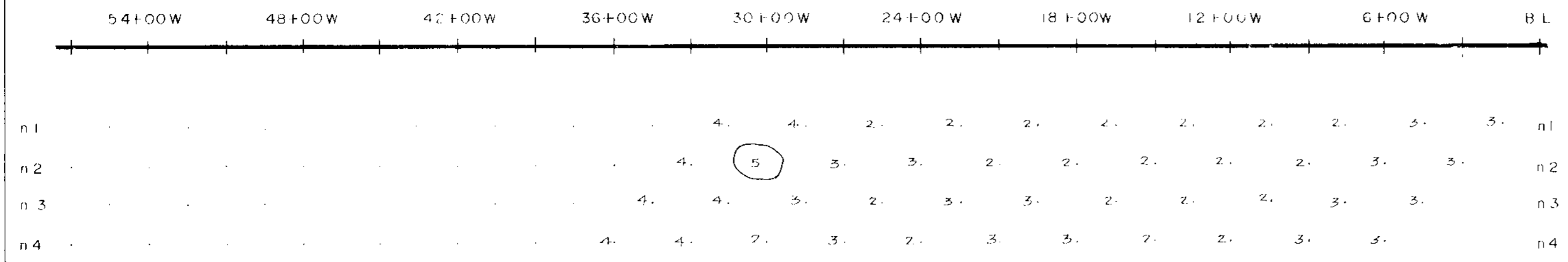
INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD., EXPLORATION DIVISION



Apparent Resistivity ρ_a (Ω m)



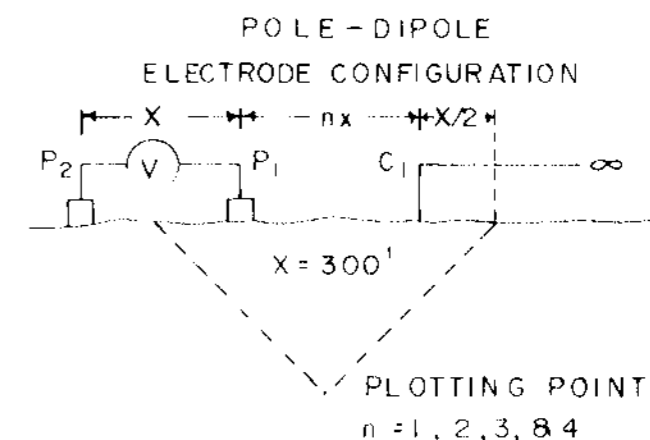
Apparent Chargeability M_a (ms)



LINE 12+00 S

COMINCO LTD. AND PROPERTY KAMLOOPS AREA, KAMLOOPS M.D., B.C.

LINE NO. 8+00 S



R - INTERPRETED CONTACT LOCATION
F - INTERPRETED FAULT LOCATION

6224

SCALE 1" = 400'

CONTOUR INTERVALS :
APP. CHARG. - 5 ms
APP. RES. - 25 Ω m

DATE SURVEYED SEPT. 1976

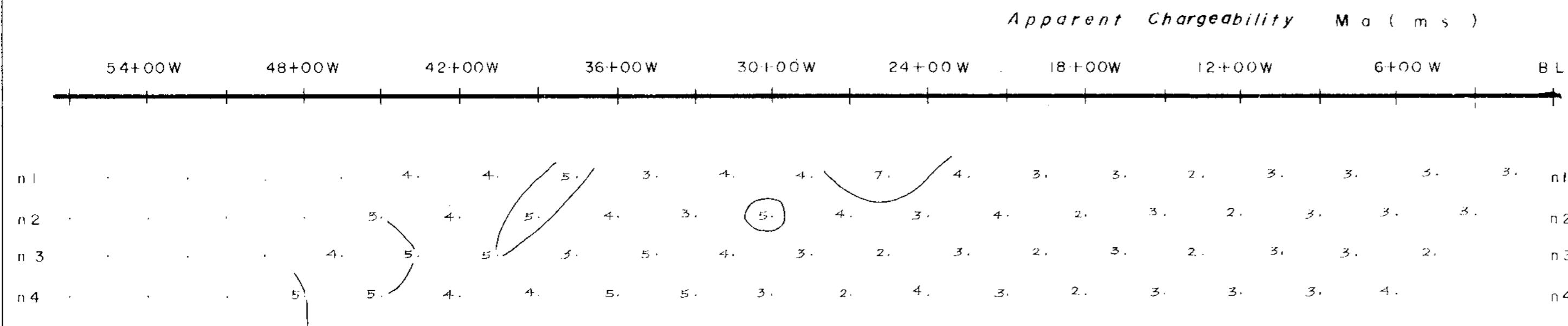
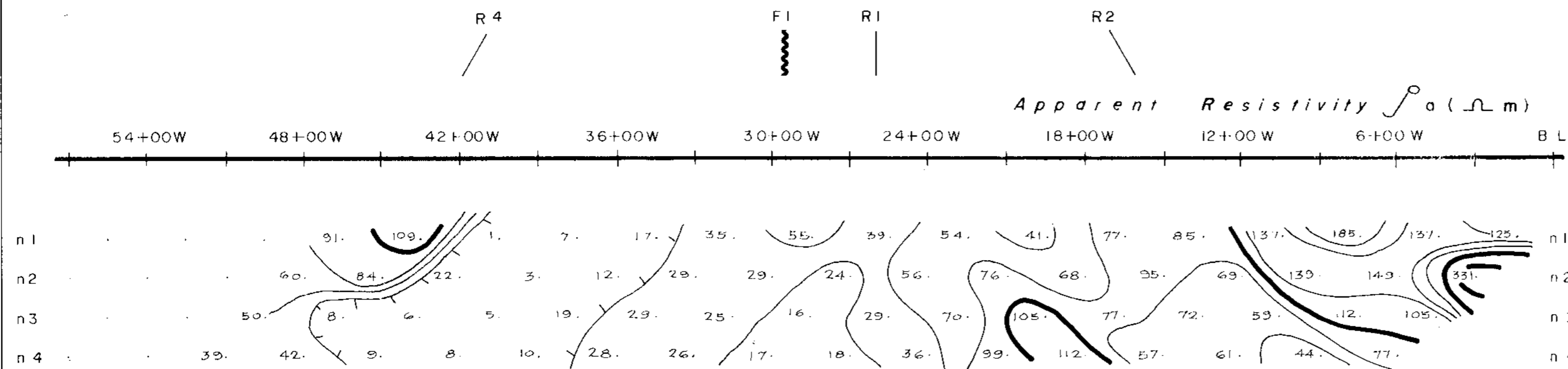
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DATE 8/23/77

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AND NEWMONT I.P.R. 7

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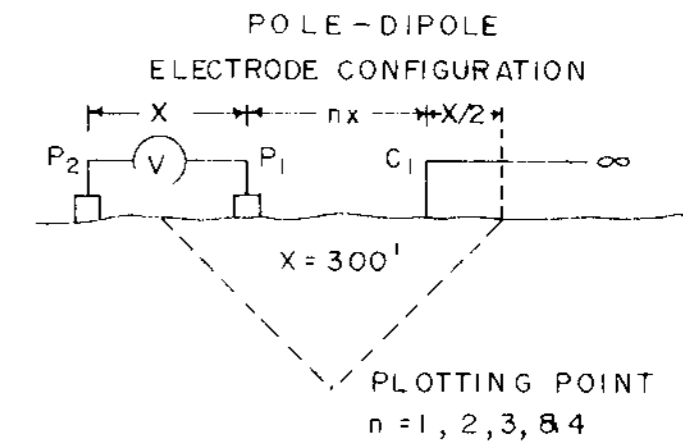
INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD., EXPLORATION DIVISION



LINE 8+00 S

COMINCO LTD. AND PROPERTY KAMLOOPS AREA, KAMLOOPS M.D., B.C.

LINE NO. 4+00 S



R -- INTERPRETED CONTACT LOCATION
F -- INTERPRETED FAULT LOCATION

6224

SCALE 1" = 400'

CONTOUR INTERVALS:
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APP. RES. -- 25-Ω m

DATE SURVEYED SEPT. 1976

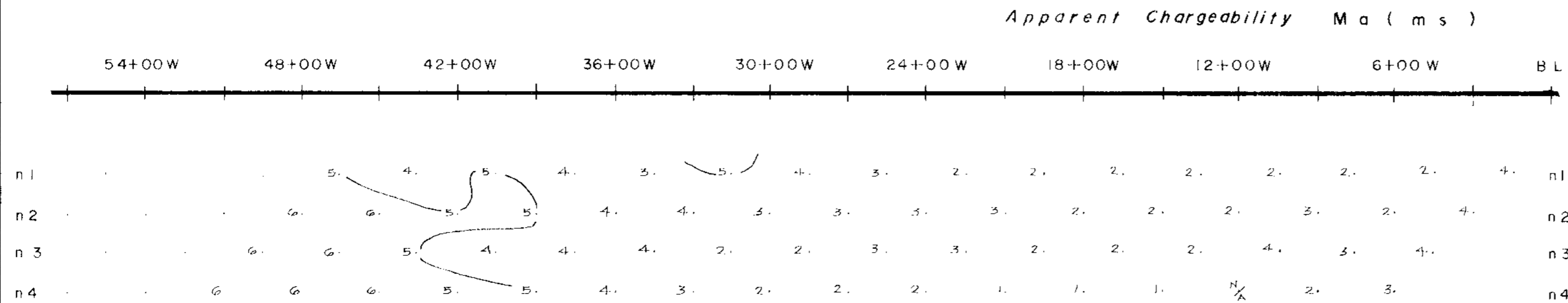
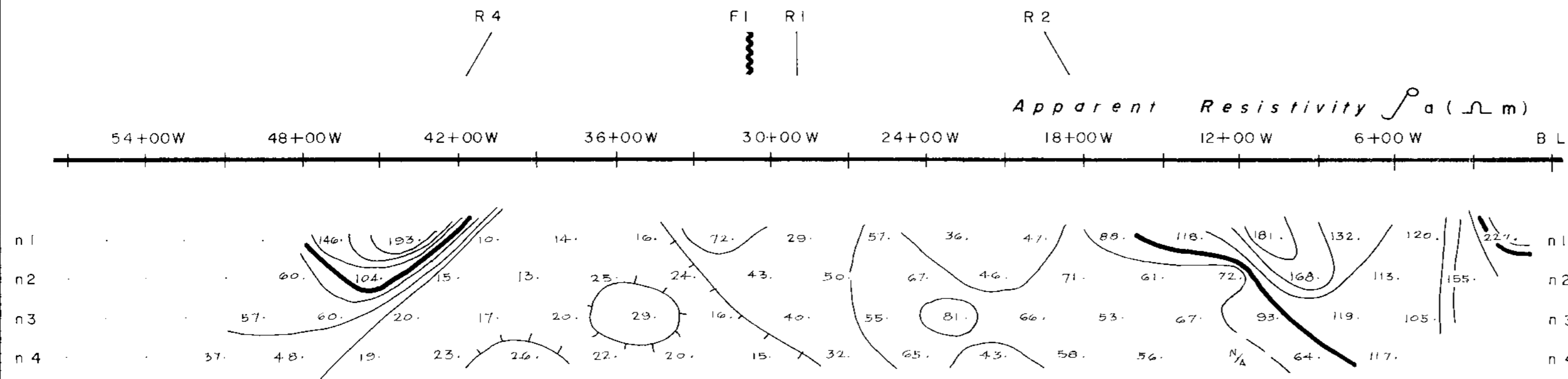
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DATE 18-03-77

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AND NEWMONT I.P.R 7

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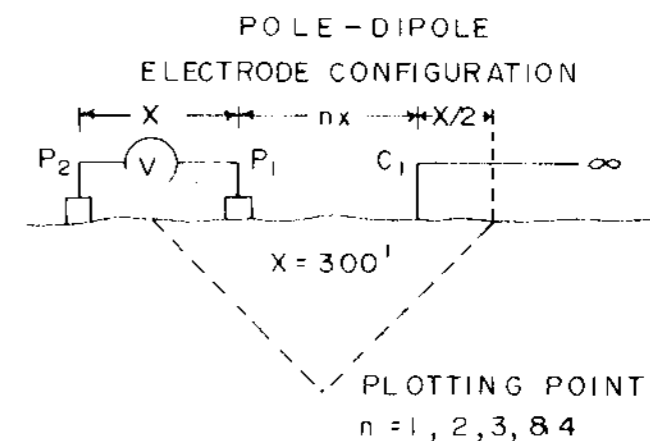
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LINE 4+00 S

COMINCO LTD. AND PROPERTY KAMLOOPS AREA, KAMLOOPS M.D., B.C.

LINE NO. 0+00



R - INTERPRETED CONTACT LOCATION
F - INTERPRETED FAULT LOCATION

6224

SCALE 1" = 400'

CONTOUR INTERVALS:
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APP. RES. — 25 Ω m

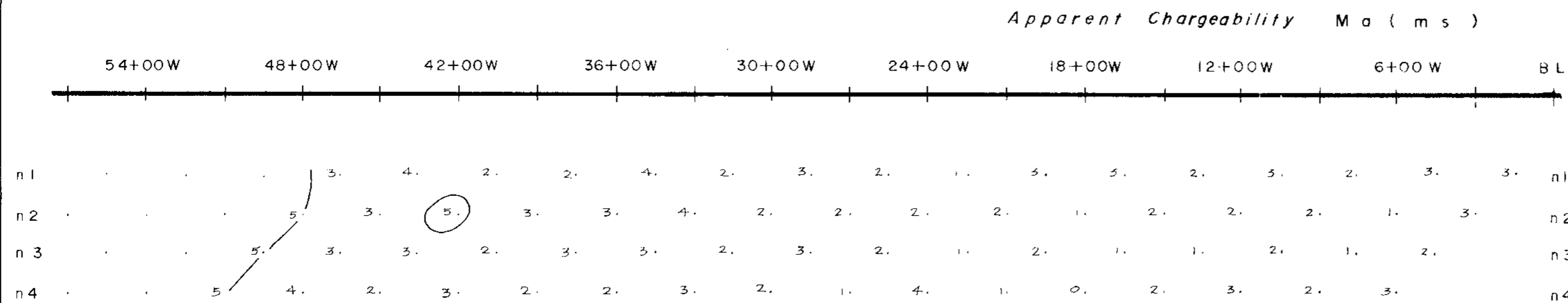
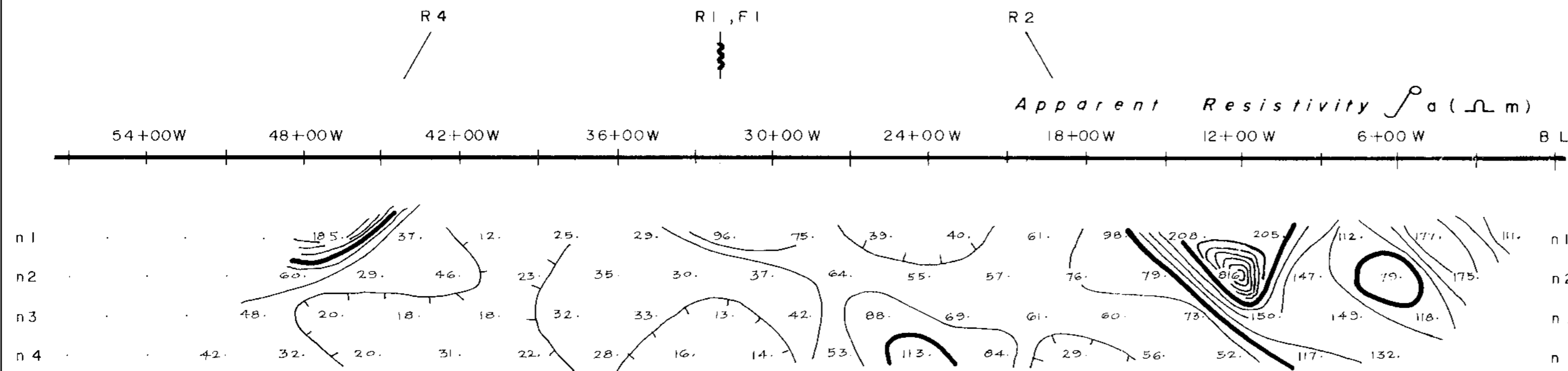
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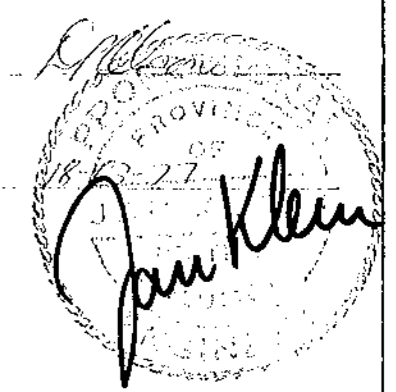
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TRANSMITTER 2.5 KW TIME DOMAIN
RECEIVER HUNTEC MK III
AND NEWMONT I.P.R. 7

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

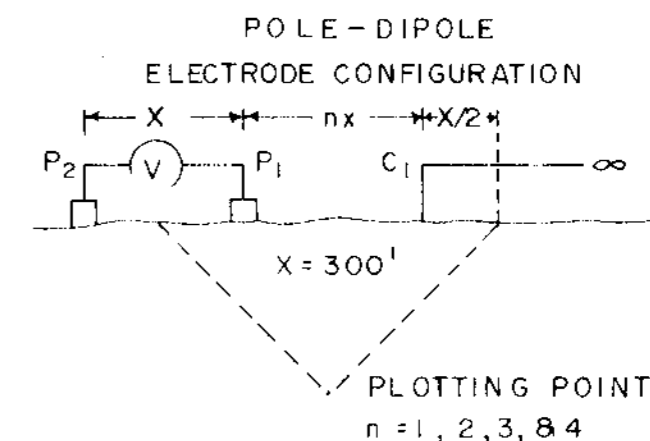


LINE 0+00



COMINCO LTD. AND PROPERTY KAMLOOPS AREA, KAMLOOPS M.D., B.C.

LINE NO. 4+00 N



R -- INTERPRETED CONTACT LOCATION
F -- INTERPRETED FAULT LOCATION

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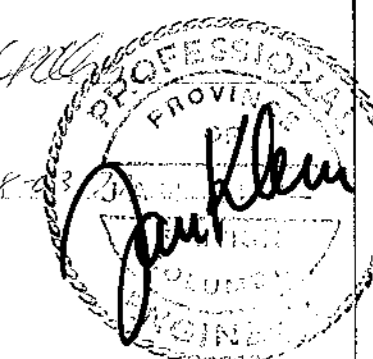
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APP. RES. — 25 Ω m

DATE SURVEYED SEPT. 1976

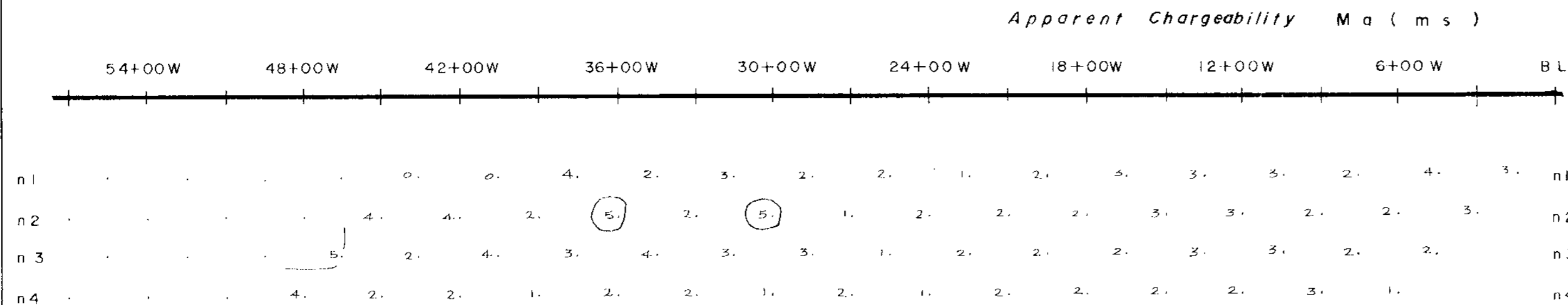
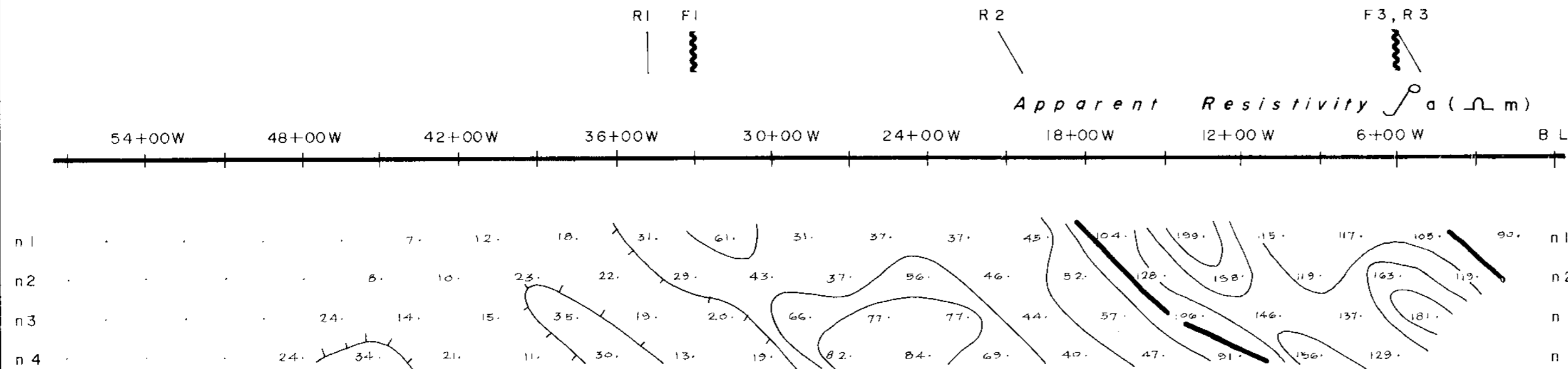
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DATE _____



TRANSMITTER 2.5 KW TIME DOMAIN
RECEIVER HUNTEC MK III
AND NEWMONT I.P.R. 7

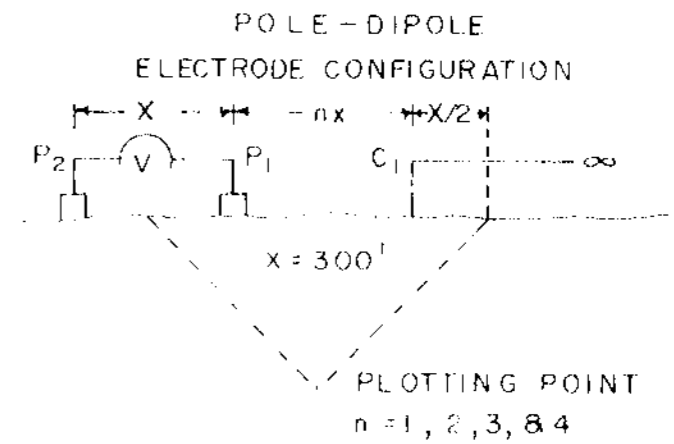
INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD., EXPLORATION DIVISION



LINE 4+00 N

COMINCO LTD. AND PROPERTY KAMLOOPS AREA, KAMLOOPS M.D., B.C.

LINE NO. 8+00N



R -- INTERPRETED CONTACT LOCATION
F -- INTERPRETED FAULT LOCATION

6224

SCALE 1" = 400'

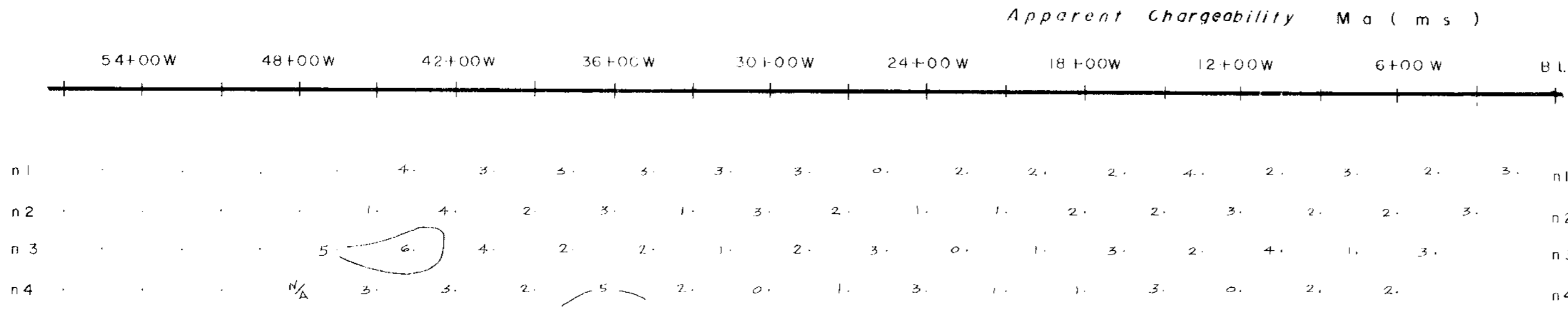
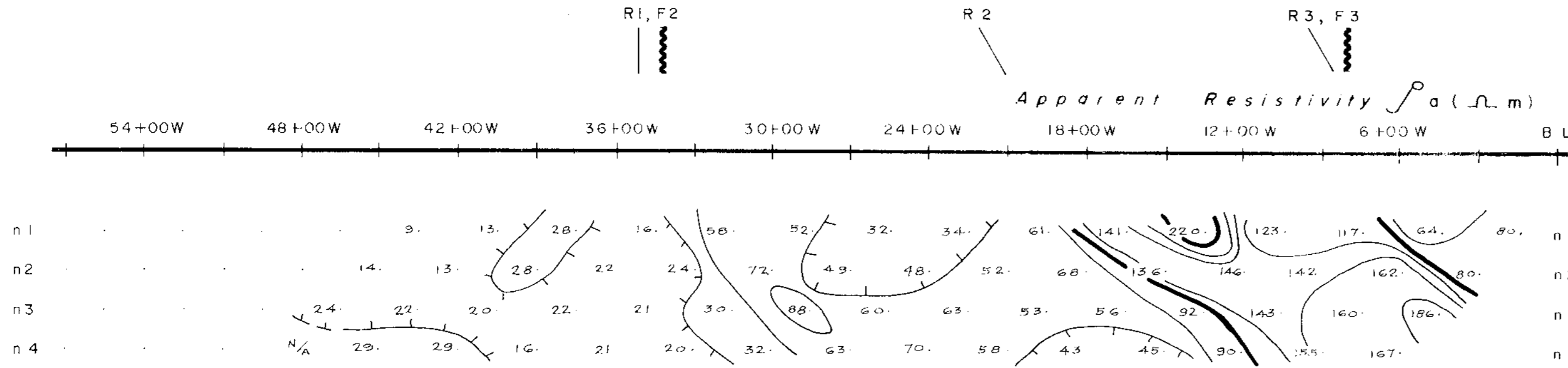
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APP. RES --- 2.5 Ω m

DATE SURVEYED SEPT 1976

APPROVED *[Signature]*
DATE 18-63 *[Signature]*

TRANSMITTER 2.5 KW TIME DOMAIN
RECEIVER HUNTEC MK III
AND NEWMONT I.P.R 7

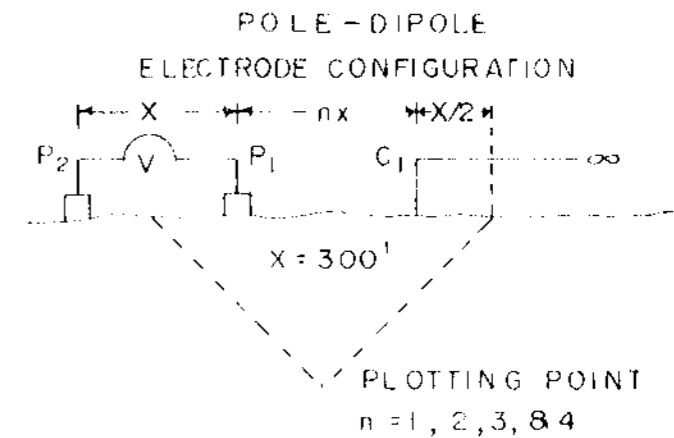
INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD., EXPLORATION DIVISION



LINE 8+00N

COMINCO LTD. AND PROPERTY KAMLOOPS AREA, KAMLOOPS M.D., B.C.

LINE NO. 12+00 N



R - INTERPRETED CONTACT LOCATION
F - INTERPRETED FAULT LOCATION

6224

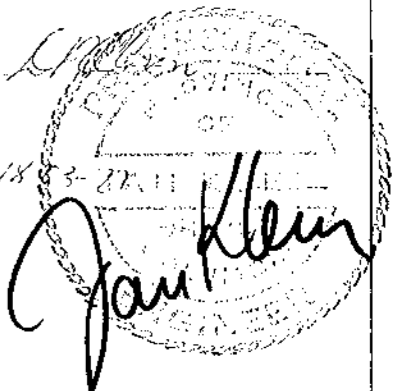
SCALE 1" = 400'

CONTOUR INTERVALS :
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APP. RES. --- 25 Ω m

DATE SURVEYED SEPT 1976

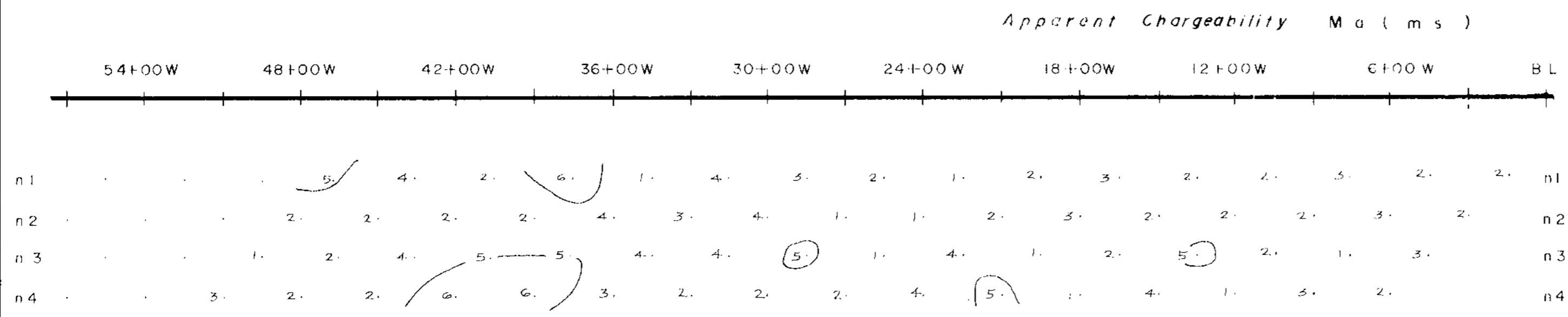
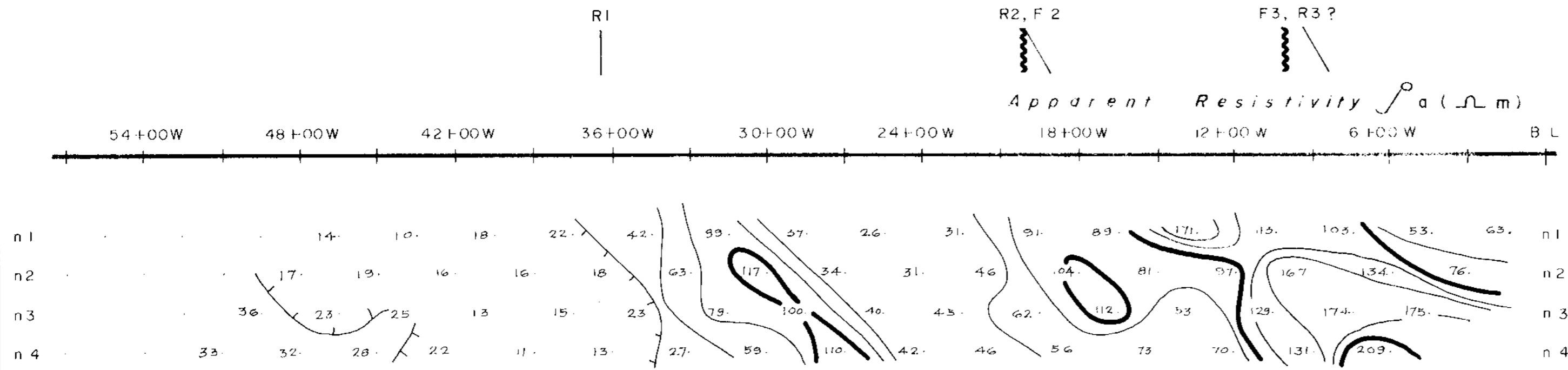
APPROVED

DATE



TRANSMITTER 2.5 KW TIME DOMAIN
RECEIVER HUNTEC MK III
AND NEWMONT I.P.R. 7

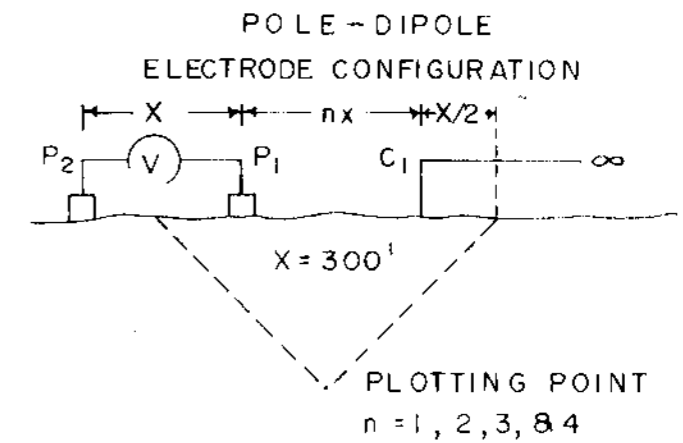
INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD., EXPLORATION DIVISION



LINE 12+00 N

COMINCO LTD. AND PROPERTY KAMLOOPS AREA, KAMLOOPS M.D., B.C.

LINE NO. 16+00N



R - INTERPRETED CONTACT LOCATION
F - INTERPRETED FAULT LOCATION

6224

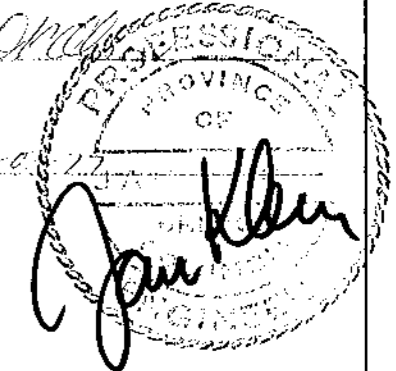
SCALE 1" = 400'

CONTOUR INTERVAL :
APP. CHARG. — 5 ms
APP. RES. — 25 Ω m

DATE SURVEYED SEPT. 1976

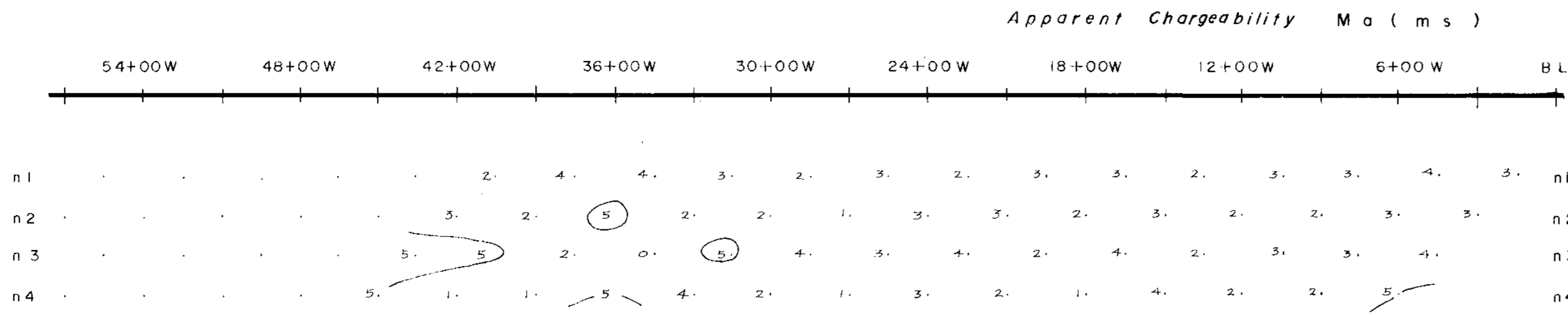
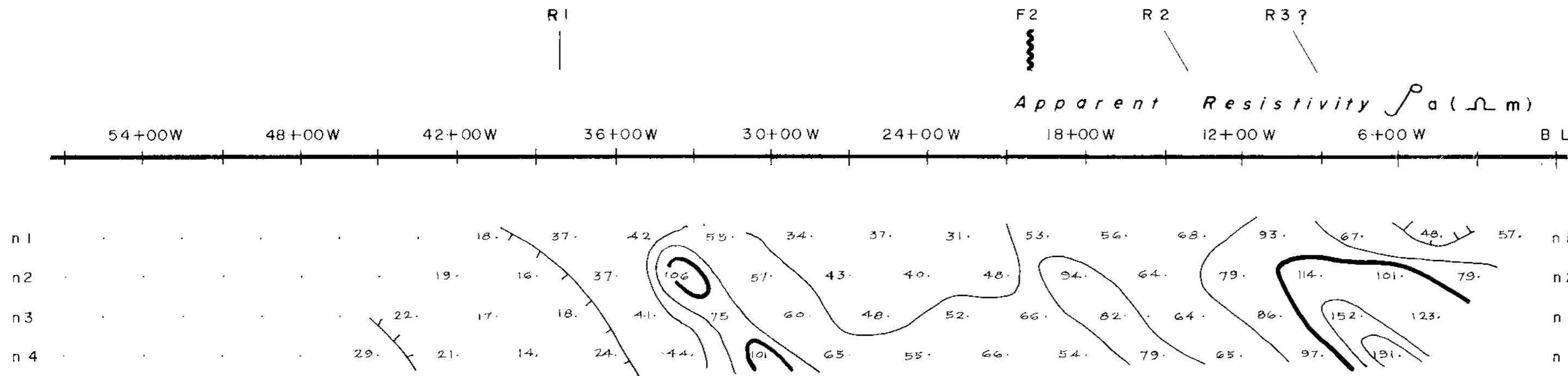
APPROVED

DATE



TRANSMITTER 2.5 KW TIME DOMAIN
RECEIVER HUNTEC MK III
AND NEWMONT I.P.R. 7

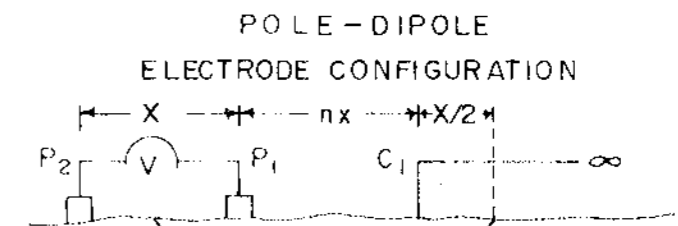
INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD., EXPLORATION DIVISION



LINE 16+00N

COMINCO LTD. AND PROPERTY KAMLOOPS AREA, KAMLOOPS M.D., B.C.

LINE NO. 20+00N



PLOTTING POINT
n = 1, 2, 3, & 4

R — INTERPRETED CONTACT LOCATION
F — INTERPRETED FAULT LOCATION

6224

SCALE 1" = 400'

CONTOUR INTERVAL
APP. CHARG. — 5 ms
APP. RES. — 25 Ω m

DATE SURVEYED SEPT. 1976

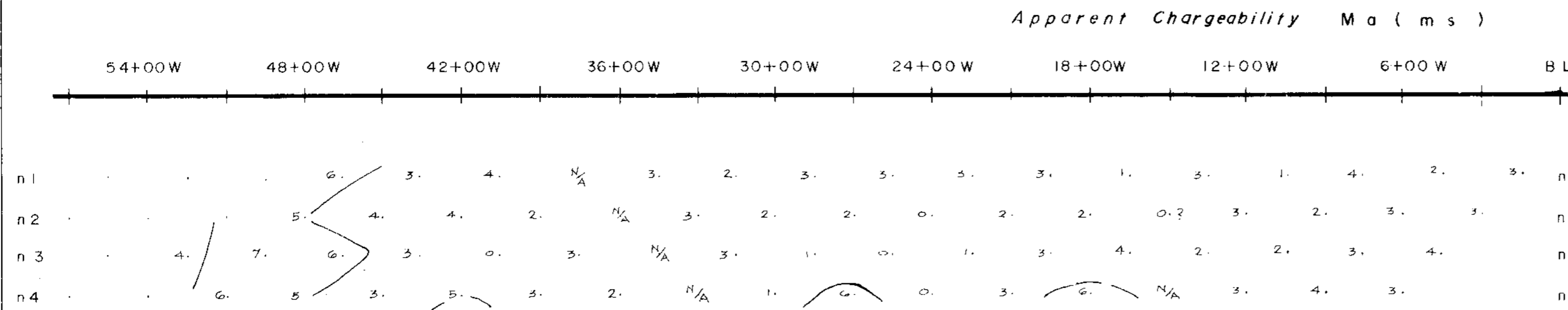
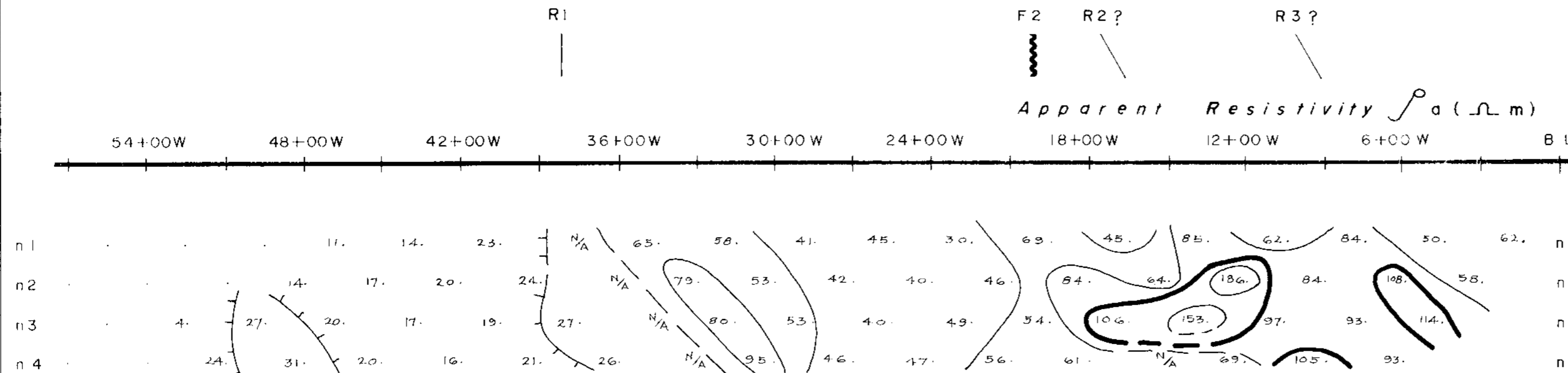
APPROVED *[Signature]*

DATE 18-03-77

TRANSMITTER 2.5 KW TIME DOMAIN
RECEIVER HUNTEC MK III
AND NEWMONT I.P.R. 7

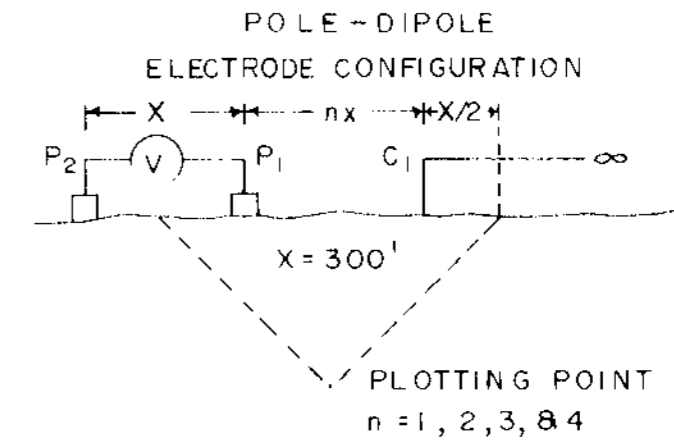
INDUCED POLARIZATION AND RESISTIVITY SURVEY
SURVEYED BY COMINCO LTD., EXPLORATION DIVISION

LINE 20+00N



COMINCO LTD. AND PROPERTY KAMLOOPS AREA, KAMLOOPS M.D., B.C.

LINE NO. 28+00N



R - INTERPRETED CONTACT LOCATION
F - INTERPRETED FAULT LOCATION

SCALE 1" = 400'

CONTOUR INTERVAL:

APP. CHARG. — 5 ms

APP. RES — 25 Ω m

DATE SURVEYED SEPT 1976

APPROVED *[Signature]*

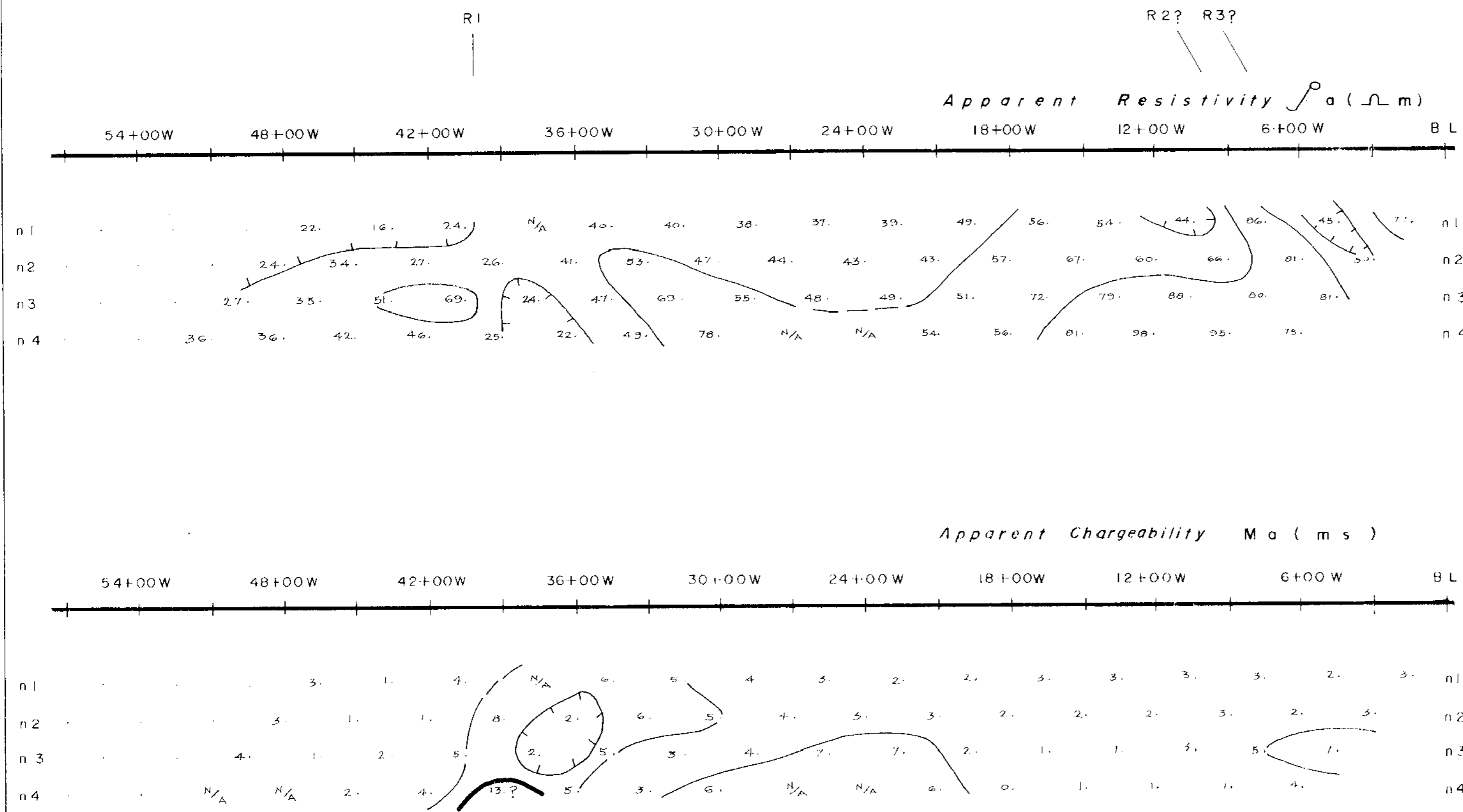
DATE 18-03-77

TRANSMITTER 2.5 KW TIME DOMAIN
RECEIVER HUNTEC MK III
AND NEWMONT I.P.R. 7

6224

[Signature]

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



LINE 28+00N