COMINCO LTD.

EXPLORATION

WESTERN DISTRICT

NTS: 92P-16

GEOPHYSICAL REPORT ON AN INDUCED POLARIZATION SURVEY ON THE PATRICIA LAKE PROPERTY

Clearwater Area; Kamloops Mining Division, B.C.

LATITUDE: 51°45'N

LONGITUDE: 120°15'W

Field Work Performed: August 7-18, 1981

On Claims: PL1, PL3

1 OCTOBER 1981

ALAN R. SCOTT

TABLE OF CONTENTS

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ATTACHMENTS

COMINCO LTD.

EXPLORATION
NTS: 92P-16

WESTERN DISTRICT
1 October 1981

GEOPHYSICAL REPORT ON AN INDUCED POLARIZATION SURVEY ON THE PATRICIA LAKE PROPERTY

Clearwater Area; Kamloops Mining Division, B.C.

INTRODUCTION

During the period August 7-18, 1981, a Cominco geophysical crew completed an induced polarization survey on portions of the Patricia Lake property. A total of 24 line kilometers on 8 lines 200 meters apart were surveyed using the pole dipole electrode array, with an electrode spacing of 50 meters and separations of 1, 2, and 3.

The Patricia Lake property is located some 18 kilometers northwest of Clearwater, B.C. Plate 1 shows the general location of the property, and plate 2 the location of the surveyed lines with respect to the claims.

This report describes the methodology of the surveys, presents the data, and discusses the geophysical results.

INDUCED POLARIZATION SURVEY

A Huntec 7.5 kw transmitter in combination with a Scintrex IPR-8 receiver were deployed on the Patricia Lake survey. Readings were taken in the time domain using a 2 second current on/2 second current off alternating square wave signal. The plotted value is the M_{232} value of from 650-1170 milliseconds following cessation of the current pulse. Units of chargeability (IP) response for the IPR-8 receiver are millivolts/volt.

The pole dipole electrode array was used on the survey with an "a" spacing of 50 meters and "n" separations of 1, 2, and 3. The current electrode was kept to the south on all survey lines.

The apparent resistivity was calculated from the relation:-

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

where V is the voltage across the measuring dipole during the current (I) on pulse, and K is a geometric factor dependent on the "a" spacing and "n" separation.

DISCUSSION OF RESULTS

The chargeability and apparent resistivity results are presented in pseudo section format on plates 5 to 8, and the near separation (n=1) values in contour plan forms on plates 3 and 4. Chargeability anomalies have been categorized on the pseudosections as follows:

▬▬▬▬	strong IP high (>40 $\frac{mv}{v}$ at near separations)
■■■■■■■	moderate IP high (20-40 $\frac{mv}{v}$ at near separations)
//////////	weak IP high (10-20 $\frac{mv}{v}$ at near separations)
— — —	IP high at further separation (n=3, >10 $\frac{mv}{v}$)

Additionally, zones of low resistivity (< 100 ohm meters) are indicated by a light dashed line.

Most of the survey area gave only background chargeability response (<10 mv/v). One weak anomaly was defined at about 2150 N on line 1400 E. However, the southwest portion of the grid gave above background chargeability response. A strong IP high within this anomalous area strikes from 220 N on line 1400 E north westerly to 600 N on line 800 E. This strongly anomalous zone is coincident with low apparent resistivity. A second strong IP high within the generally anomalous area lies in the southwest portion of the anomalous area. This strong IP high is coincident with very low resistivity (less than 10 ohm meters) on line 200 E (baseline → 225N), line 400 E (50 S → 50 N) and on line 600 E (baseline → 100 N). The high chargeability/very low resistivity of this anomaly suggests electrically interconnected graphite and/or sulphide minerals as a causative source. Further work to determine the causative source is recommended.

CONCLUSIONS

Portions of the Patricia Lake property were surveyed with multiseparation time domain IP in the summer of 1981. A weak anomaly was detected on line 1400 E some 2150 meters north of the baseline, and a large area of from weak to strong chargeability response in the southwest portion of the grid. This anomalous area is open to the west and to the south.

Two zones of coincident strong chargeability low apparent resistivity lie within the generally anomalous SW area. One zone strikes north westerly from 220 N on line 1400 E to 600 N on line 800 E. The second strong chargeability zone lies in the extreme southwest portion of the anomalous area. A very low resistivity zone (as low as 2 ohm meters) strikes west north west at the south end of lines 200 E to 600 E and is coincident with strongly high chargeability. Geophysically, electronically interconnected graphite and/or sulphide minerals is the most probable causative source of this anomaly. Further work to determine its source would appear warranted. A horizontal loop EM and magnetometer survey would provide a more accurate quantitative interpretation of the geometry.

Respectfully submitted by: [signature]
Alan R. Scott
Geophysicist

Approved for
Release by: M. J. Wolfe for
G. Harden
Manager,
Exploration
Western District

ARS/skg

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 PL MINERAL CLAIMS

ON THE PATRICIA LAKE PROPERTY

LOCATED IN THE CLEARWATER AREA, KAMLOOPS MINING DIVISION, B.C.

OF THE PROVINCE OF BRITISH COLUMBIA, MORE PARTICULARLY

N.T.S.: 92P-16

S T A T E M E N T

I, Alan R. 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 the annexed hereto and marked as "Appendix II" to this statement is a true copy of expenditures incurred on geophysical survey on the PATRICIA LAKE Property;

3) THAT the said expenditures were incurred for the purpose of mineral exploration of the above noted claims between the 7th day and 18th day of August, 1981.

Signed: ______________
Alan R. Scott, Geophysicist

1 October 1981

APPENDIX II

STATEMENT OF EXPENDITURES

(Induced Polarization Survey, Linecutting)

1. Salaries

I. Jackisch, geophysicist,	Aug. 7-18, 12 days @ 135.00	=	$1,620.00	
K. MacKinnon, geophysicist-in-training,	Aug. 7-18, 12 days @ 110.00	=	1,320.00	
C. Frechette, helper,	Aug. 7-18, 12 days @ 93.30	=	1,119.60	
M. Crosby, helper	Aug. 7-18, 12 days @ 93.30	=	1,119.60	
P. Evans, helper	Aug. 7-18, 12 days @ 93.30	=	1,119.60	
				$6,298.80

2. Equipment Rentals

7.5 kw IP survey system,	10 survey days @ 245.00	=	2,450.00	
4 x 4 suburban,	12 days @ 50.00	=	600.00	
				$3,050.00

3. Charges per survey day (towards drafting, report, supervision)

10 survey days @ 225.00	=	2,250.00	
			$2,250.00

4. Miscellaneous expenses

Meals, accommodations, travel expenses, survey consumables	=	3,277.00	
			$3,277.00

5. Linecutting

26 kilometers @ 548.00	=		$14,248.00
Total Expenditures:	=		$29,123.80

APPENDIX III

CERTIFICATION

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

1) THAT I graduated from the University of British Columbia in 1970 with a B.Sc. in Geophysics;

2) THAT 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) THAT I have been practising my profession for the past eleven years.

Signed: ____________________
Alan R. Scott, Geophysicist

1 October 1981

PATRICIA LAKE CLAIMS – GRIZZLY LAKES

NTS 92 P 16

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

LOCATION MAP

KAMLOOPS M.D., B.C.

Scale: 1 : 100,000	Date: SEPT 1981	Plate: 214-81-1

N.T.S. 92 P 16

DWG. NO. 214-81-5

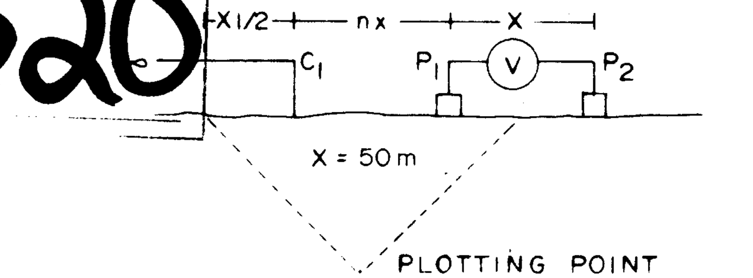
COMINCO LTD.
GRIZZLY LAKES
PL CLAIMS
KAMLOOPS M.D., B.C.

LINE NO. 200E

LINE NO. 400E

9620

POLE–DIPOLE
ELECTRODE CONFIGURATION



PLOTTING POINT
n = 1, 2, 3

CURRENT ELECTRODE SOUTH OF POTENTIAL DIPOLE

CHARGEABILITY (IP) INTERPRETATION
- STRONG CHARGEABILITY HIGH
- MODERATE CHARGEABILITY HIGH
- WEAK CHARGEABILITY HIGH
- IP HIGH AT FURTHER SEPERATIONS

APPARENT RESISTIVITY INTERPRETATION
- APPARENT RESISTIVITY LOW

SCALE 1:3000

DATE SURVEYED LINE 200E AUG 8,13 1981
LINE 400E AUG 9,13 1981

CONTOUR INTERVALS:

APP RES — 1, 1.5, 2, 3, 5, 7.5, 10 ohm metres
APP CHARG — 10.0 MV / V

APPROVED

DATE

TRANSMITTER — HUNTEC 7.5 Kw UNIT

RECEIVER — IPR-8

INDUCED POLARIZATION AND RESISTIVITY SURVEY

SURVEYED BY COMINCO LTD., EXPLORATION DIVISION

LINE 200E

LINE 400E

N.T.S. 92 P 16

DWG. NO. 214-81-6

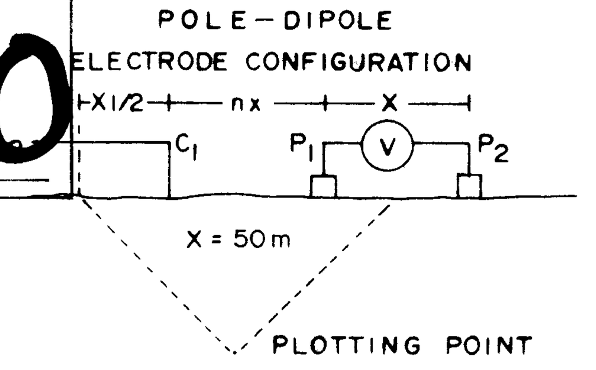
COMINCO LTD.
GRIZZLY LAKES
PL CLAIMS
KAMLOOPS M.D., B.C.

LINE NO. 600 E

LINE NO. 800 E

9620

POLE–DIPOLE
ELECTRODE CONFIGURATION



CURRENT ELECTRODE SOUTH OF POTENTIAL DIPOLE

CHARGEABILITY (IP) INTERPRETATION
STRONG CHARGEABILITY HIGH
MODERATE CHARGEABILITY HIGH
WEAK CHARGEABILITY HIGH
IP HIGH AT FURTHER SEPERATIONS

APPARENT RESISTIVITY INTERPRETATION
APPARENT RESISTIVITY LOW

SCALE 1:3000

DATE SURVEYED LINE 600E AUG10,14 1981 / LINE 800E AUG10,11 1981

CONTOUR INTERVALS:
APP. RES. — 1, 1.5, 2, 3, 5, 7.5, 10 ohm metres
APP. CHARG. — 10.0 MV / V

APPROVED

DATE

TRANSMITTER — HUNTEC 7.5 Kw UNIT
RECEIVER — IPR-8

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

LINE 600E LINE 800E

N.T.S. 92 P 16

DWG. NO. 214-81-7

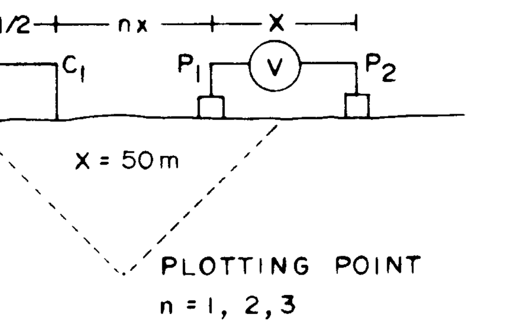
COMINCO LTD.
GRIZZLY LAKES
PL CLAIMS
KAMLOOPS M.D., B.C.

9620

LINE NO. 1000 E

LINE NO. 1200 E

POLE–DIPOLE
ELECTRODE CONFIGURATION



CURRENT ELECTRODE SOUTH OF POTENTIAL DIPOLE

CHARGEABILITY (IP) INTERPRETATION
- STRONG CHARGEABILITY HIGH
- MODERATE CHARGEABILITY HIGH
- WEAK CHARGEABILITY HIGH
- IP HIGH AT FURTHER SEPERATIONS

APPARENT RESISTIVITY INTERPRETATION
- APPARENT RESISTIVITY LOW

SCALE 1 : 3000

DATE SURVEYED LINE 1000 E AUG 11,12 1981
LINE 1200 E AUG 15 1981

CONTOUR INTERVALS :
APP. RES. — 1, 1.5, 2, 3, 5, 7.5, 10 ohm metres
APP. CHARG. — 10.0 MV / V

APPROVED [signature]

DATE

TRANSMITTER — HUNTEC 7.5 Kw UNIT
RECEIVER — IPR-8

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

LINE 1000 E LINE 1200 E

N.T.S. 92 P 16

DWG. NO. 214-81-8

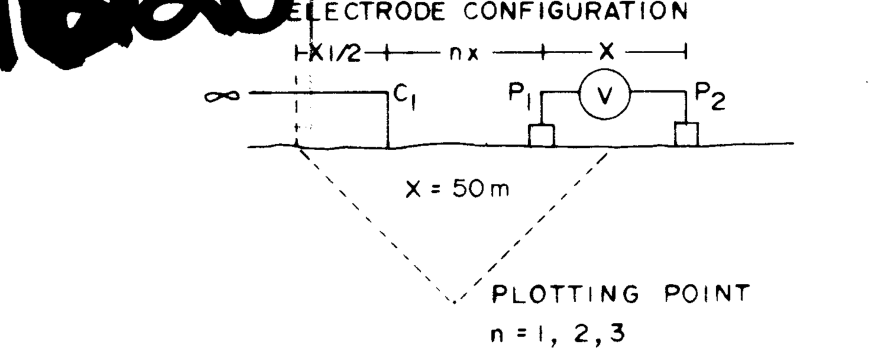
COMINCO LTD.
GRIZZLY LAKES
PL CLAIMS
KAMLOOPS M.D., B.C.

LINE NO. 1400 E

LINE NO. 1600 E

9620

POLE–DIPOLE
ELECTRODE CONFIGURATION



CURRENT ELECTRODE SOUTH OF POTENTIAL DIPOLE

CHARGEABILITY (IP) INTERPRETATION
- STRONG CHARGEABILITY HIGH
- MODERATE CHARGEABILITY HIGH
- WEAK CHARGEABILITY HIGH
- IP HIGH AT FURTHER SEPERATIONS

APPARENT RESISTIVITY INTERPRETATION
- APPARENT RESISTIVITY LOW

SCALE 1:3000

DATE SURVEYED LINE 1400E AUG.16, 1981
LINE 1600E AUG.17, 1981

CONTOUR INTERVALS:
APP RES — 1, 1.5, 2, 3, 5, 7.5, 10 ohm metres
APP CHARG — 10.0 MV / V

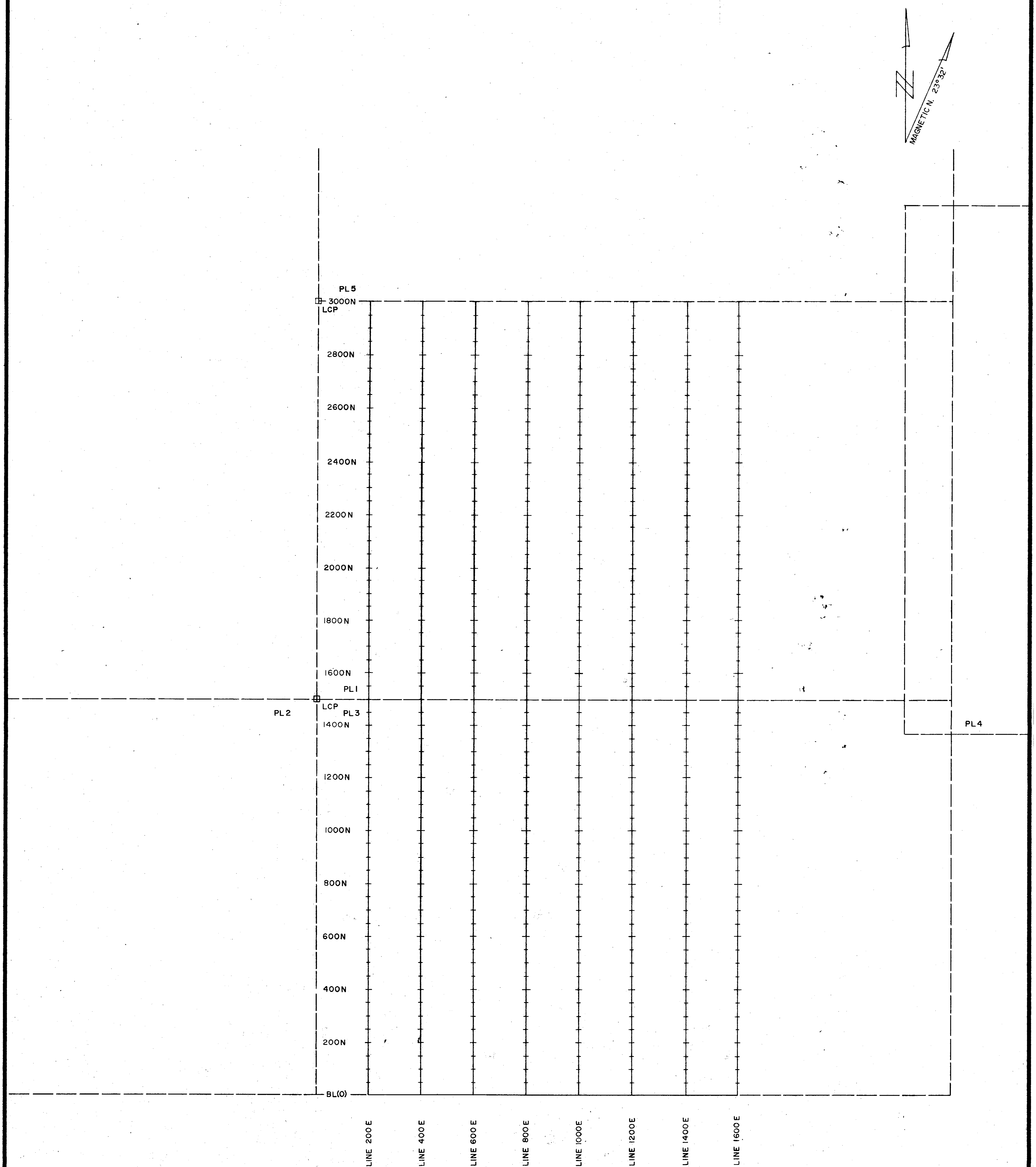
APPROVED

DATE

TRANSMITTER — HUNTEC 7.5 Kw UNIT
RECEIVER — IPR-8

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

LINE 1400 E LINE 1600 E



1981 GEOPHYSICS GROUND GRID

INSTRUMENT:
TRANSMITTER - HUNTEC 7.5 Kw. UNIT
RECEIVER - IPR-8

LCP — LEGAL CORNER POST

CLAIM BOUNDARY (APPROXIMATE LOCATION)

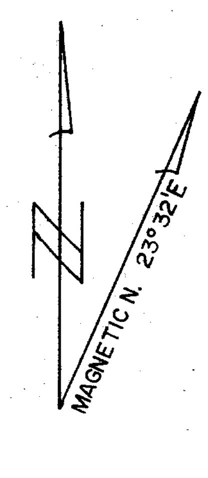
9620

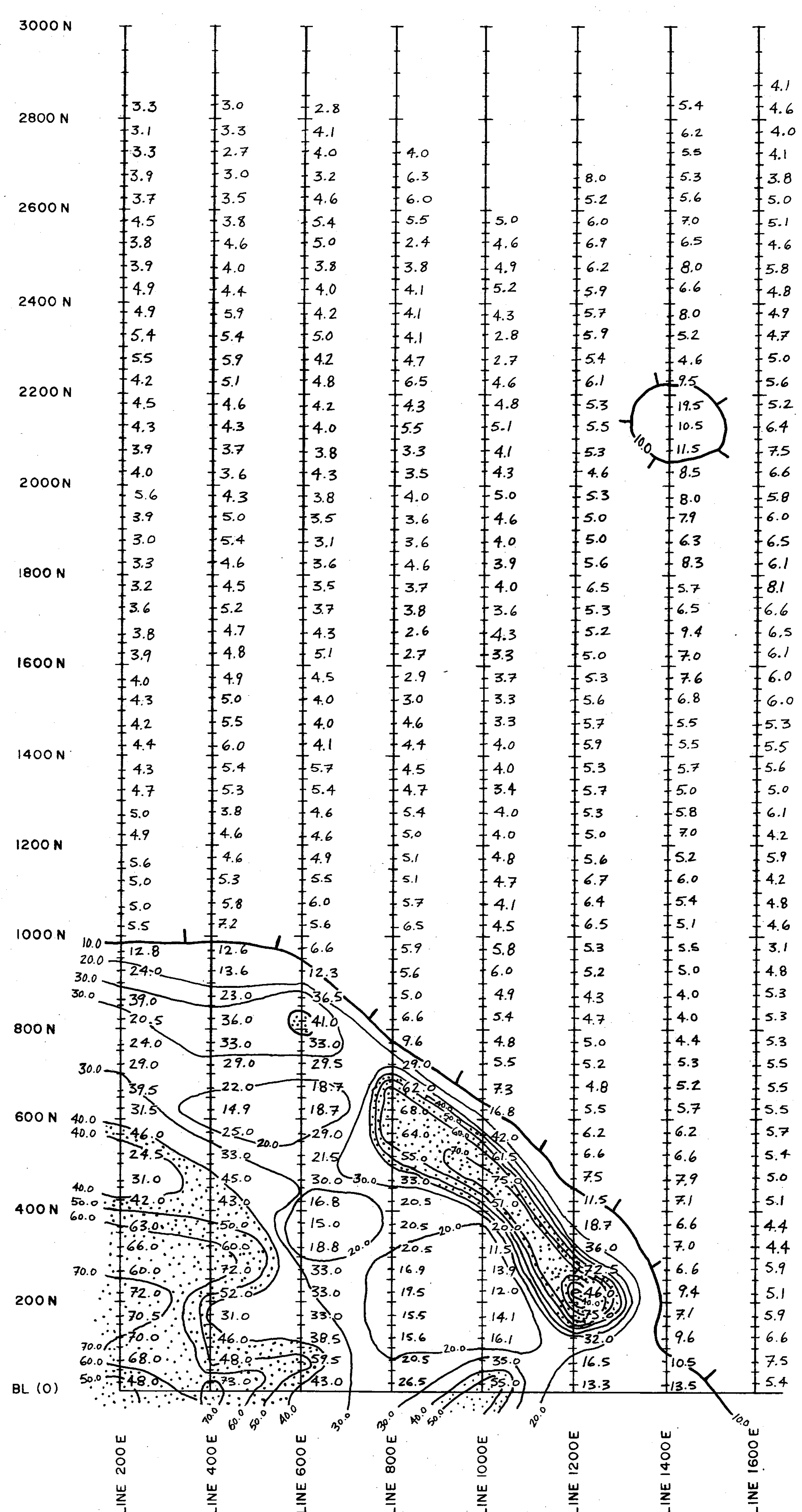
PATRICIA LAKE CLAIMS - GRIZZLY LAKES

NTS 92P-16

Drawn by:		Traced by:		
Revised by	Date	Revised by	Date	CLAIM MAP X = 50m n = 1 KAMLOOPS M.D., B.C.

Scale: 1:10,000 | Date: SEPT. 1981 | Plate: 214-81-2





1981 GEOPHYSICS GROUND GRID

INSTRUMENT:
TRANSMITTER - HUNTEC 7.5 Kw. UNIT
RECEIVER - IPR-8

> 40 MILLIVOLTS / VOLTS

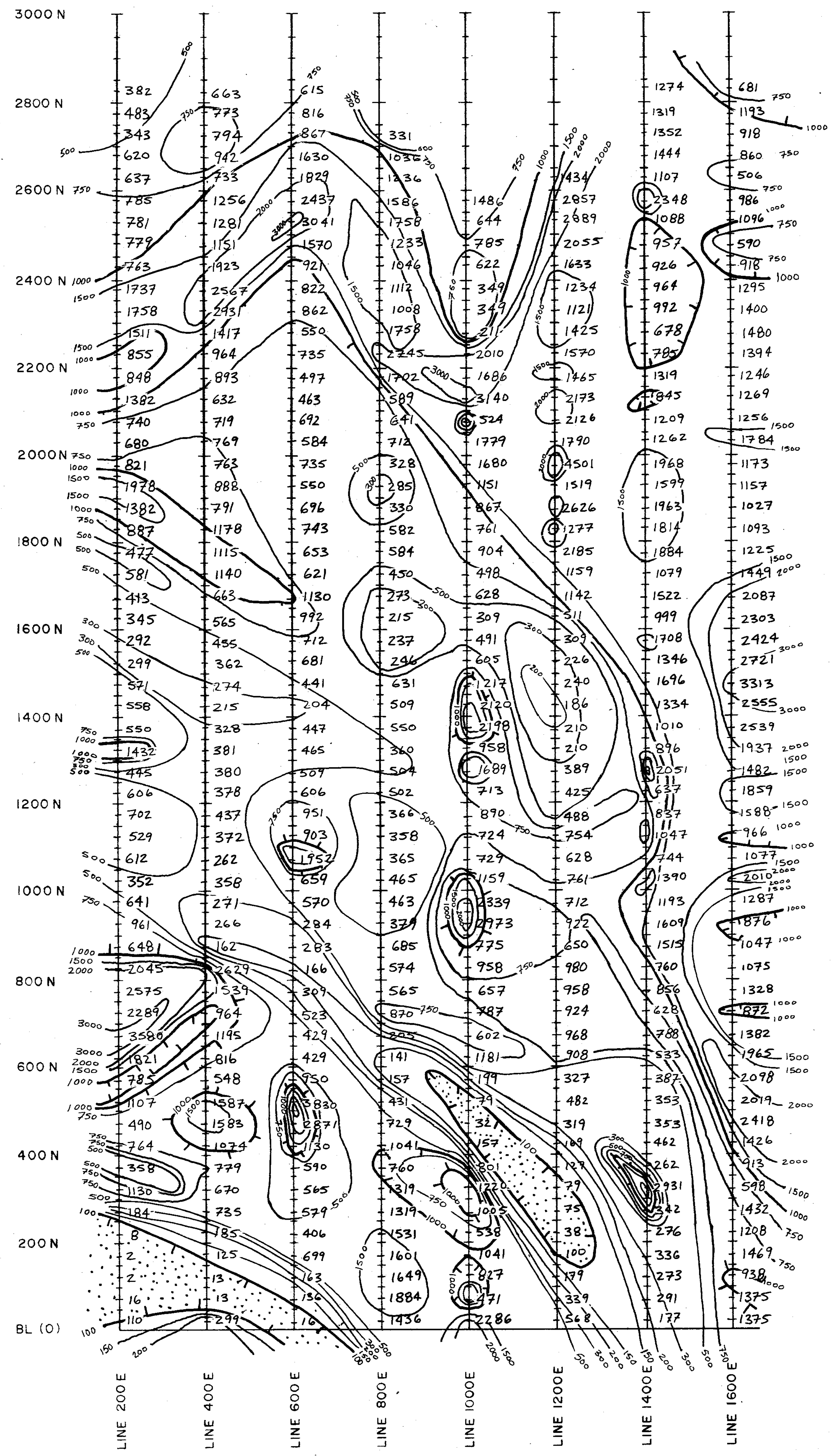
PATRICIA LAKE CLAIMS - GRIZZLY LAKES

NTS 92P-16

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

I.P. CHARGEABILITY
X = 50 m n = 1
KAMLOOPS M.D., B.C.

Scale: 1:10,000 | Date: SEPT. 1981 | Plate: 214-81-3



1981 GEOPHYSICS GROUND GRID

INSTRUMENT:
TRANSMITTER - HUNTEC 7.5 Kw. UNIT
RECEIVER - IPR-8

< 100 OHM METRES

PATRICIA LAKE CLAIMS - GRIZZLY LAKES

NTS 92P-16

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

RESISTIVITY
X = 50 m n = 1
KAMLOOPS M.D., B.C.

Scale: 1:10,000 Date: SEPT. 1981 Plate: 214-81-4