

EXPLORATION  
NTS: 92I/7W

COMINCO LTD.

81-1184-9953

WESTERN DISTRICT

GEOPHYSICAL REPORT  
ON AN  
INDUCED POLARIZATION AND  
MAGNETIC SURVEY  
ON THE  
NOVA OPTION, GUMP GROUP  
CHATAWAY LAKE AREA, KAMLOOPS MINING DIVISION, B.C.

LATITUDE: 50<sup>0</sup>25'N

LONGITUDE: 120<sup>0</sup>55'W

Field Work Performed: June 15 - July 18, 1981  
On Claims: NOVA 2, 4, 5 and 6, and APOLLO 1, 2 and 4

5 NOVEMBER 1981

J. KLEIN

COMINCO LTD.

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part 1 of 2

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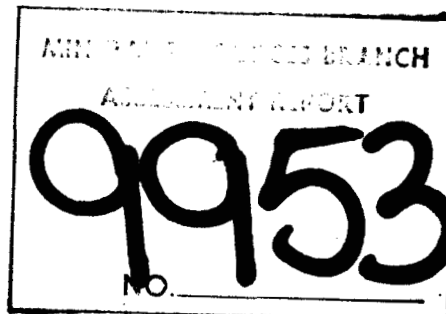
LATITUDE: 50°25'N

LONGITUDE: 120°55'W

Field Work Performed: June 15 - July 18, 1981

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J. KLEIN

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207-81-4	Apparent Resistivity Contour Plan (n=1)
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COMINCO LTD.

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WESTERN DISTRICT

5 November 1981

GEOPHYSICAL REPORT

ON AN

INDUCED POLARIZATION AND  
MAGNETIC SURVEY

ON THE

NOVA OPTION, GUMP GROUP

CHATAWAY LAKE AREA, KAMLOOPS MINING DIVISION, B.C.

INTRODUCTION

During the period June 15 to July 18, 1981, a Cominco geophysical crew completed some 30 kilometers of multiseperation induced polarization and 20 kilometers of magnetic survey over portions of the NOVA Option, Gump Group. The present survey is the first in a series to cover the property with Induced Polarization.

The NOVA Option, Gump Group is located in the Highland Valley area of B.C., immediately west of DOT Lake. Plate 1 shows the general location of the property, and Plate 2 shows the location of the survey lines with respect to the claims. The survey area is immediately west of COMINCO's Gump property.

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

INDUCED POLARIZATION SURVEY

A Huntex 7.5 kw M4 I.P. transmitter in combination with two Scintrex IPR-8 receivers were used during this survey. Readings were taken in the time domain using a 2 second current ON/OFF alternating square wave signal. Chargeability values are given in millivolts/Volt.

The survey was of a regional reconnaissance nature with survey lines 400 meters apart. A pole-dipole electrode array was used with an "a" spacing of 100 meters and "n" separations of 1, 2, 3 and 4. For logistical reasons, the direction of the current electrode with respect to the potential dipole was not kept constant for the survey. In some areas it was to the west and in others to the east. The direction is noted on the pseudosections. Where a change was made in the middle of a line, at least a one reading overlap of readings at each separation was obtained. Due to the asymmetrical nature of the pole-dipole array, differences in these overlap values are to be expected.

The apparent resistivity values are given in units of ohm meters and were calculated from the relation:

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





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

#### MAGNETOMETER SURVEY

A Scintrex MP-2 proton precession total field magnetometer was used for the magnetics survey. Readings were corrected for diurnal drift by the base station looping method on some survey lines, and by reference to an MBS-2 base station magnetometer on others. Field readings were obtained concurrently with the I.P. survey, but during the setup moves to avoid possible errors due to the transmitted current pulses. The magnetometer survey was limited to about two thirds of the area of the I.P. survey area.

#### DISCUSSION OF RESULTS

The induced polarization survey results are presented in pseudosection format on Plates 6 to 8. The chargeability response has been categorized on those sections as follows:

	strong I.P. high (> 12 mV/V at near separations)
	moderate I.P. high (9-12 mV/V at near separations)
	weak I.P. high (6-9 mV/V at near separations)
	> 6 mV/V at further separations

These categories were chosen to be consistent with the categories used on the adjacent Gump property.

Plates 3 and 4 are contour plans of the near separation (n=1) chargeability and resistivity.

Areas of greater than 6 millivolts per volt at the near separation are indicated by the stippled pattern on the contour plan. Only one area with higher chargeability has been indicated. This area extends from Line 5600S-3200W to Line 4800S-3300W, and is open to the north. No anomalous resistivity or magnetic results coincide with this zone.

Further work to determine the source of this anomalous zone is recommended.


### CONCLUSIONS

A portion of the Nova Option - Gum Group was surveyed with multiseparation time-domain I.P. in the summer of 1981. One small zone of anomalous I.P. was detected, extending from Lines 5600S to 4800S and open to the north. Further work to determine its causative source is recommended.

Report by:

  
J. Klein  
Chief Geophysicist

Approved for  
Release by:

  
G. Harden, Manager  
Exploration  
Western District

JK/jel

### Distribution:

Mining Recorder	(2)
Western District	(1)
Vernon Office	(1)
Owner	(1)
Geophysics File	(1)

APPENDIX I

IN THE MATTER OF THE B.C. MINERAL ACT  
AND IN THE MATTER OF A GEOPHYSICAL PROGRAM  
CARRIED OUT ON PORTIONS OF THE NOVA AND APOLLO MINERAL CLAIMS  
ON THE NOVA OPTION, GUMP GROUP  
LOCATED IN THE CHATAWAY LAKE AREA, KAMLOOPS MINING DIVISION, B.C.  
OF THE PROVINCE OF BRITISH COLUMBIA, MORE PARTICULARLY  
N.T.S.: 92I/7W

S T A T E M E N T

I, JAN KLEIN, OF THE CORPORATION OF RICHMOND, 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 Nova Option, Gump Group;
- 3) THAT the said expenditures were incurred for the purpose of mineral exploration of the above-noted claims between the 15th day of June and the 18th day of July, 1981.

Signed: \_\_\_\_\_

  
J. Klein  
Chief Geophysicist

5 November 1981

APPENDIX II

STATEMENT OF EXPENDITURES

NOVA OPTION, GUMP GROUP

(Induced Polarization Survey; June 15 - July 18, 1981)

1. SALARIES

G. Nolan, technician	23.5 days @ \$ 110.00 =	\$ 2,585.00	
K. MacKinnon, geophysicist-in-training	22.5 days @ 110.00 =	2,475.00	
J. Allen, helper	22.5 days @ 93.30 =	2,099.25	
C. Frechette, helper	22.5 days @ 93.30 =	2,099.25	
M. Crosby, helper	22.5 days @ 93.30 =	2,099.25	
P. Evans, helper	22.5 days @ 93.30 =	2,099.25	
			<u>\$ 13,457.00</u>

2. EQUIPMENT RENTALS

7.5 kw/IPR-8 survey system	20.5 days @ \$ 268.41 =	\$ 5,502.50	
Magnetometer LOPO/IPR-8 survey system	20.5 days @ 15.00 =	307.50	
Trailer Rental		375.00	
4x4 Suburban Vehicle	25 days @ 50.00 =	1,250.00	
			<u>7,435.00</u>

3. CHARGES PER OPERATING DAY (towards drafting, report, supervision)

20.5 days I.P. survey @ \$ 225.00	4,612.50
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4. MISCELLANEOUS EXPENSES

Meals, Accommodation, Travel Expenses, & Survey Consumables	8,456.58
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Total Expenditures \$ 33,961.08




APPENDIX III

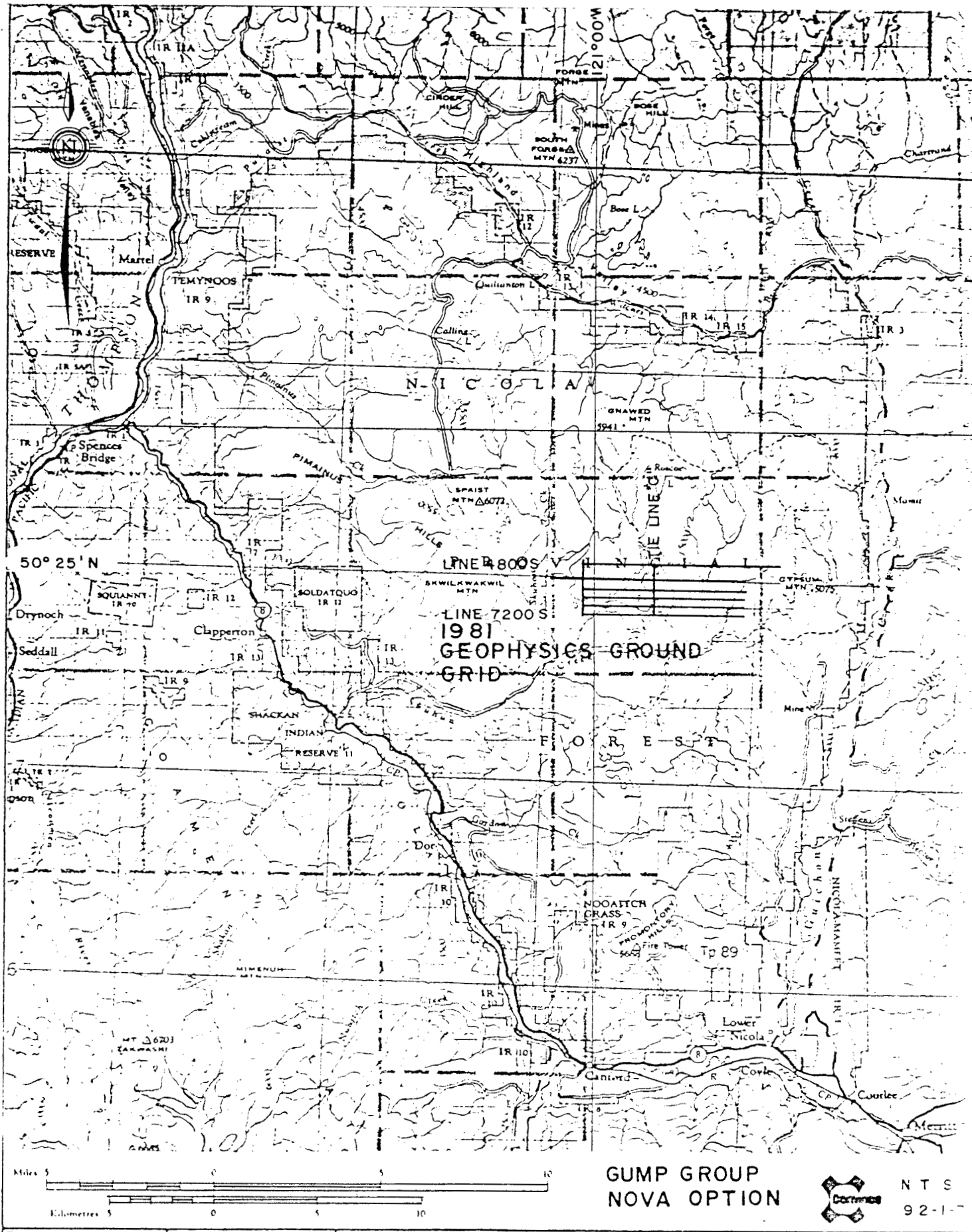
C E R T I F I C A T I O N

I, JAN KLEIN, of 4371 Coventry Drive, in the Corporation of Richmond in the Province of British Columbia, do hereby certify:-

- 1) THAT I graduated from the Technological University of Delft Netherlands in 1965 with a M.Sc. in Geophysics;
- 2) THAT I am a member of the Association of Professional Engineers of the Province of British Columbia, the Society of Exploration Geophysicists of America, and the British Columbia Geophysical Society;
- 3) THAT I have been practising my profession for the past sixteen years.

Signed:   
J. Klein  
Chief Geophysicist

5 November 1981

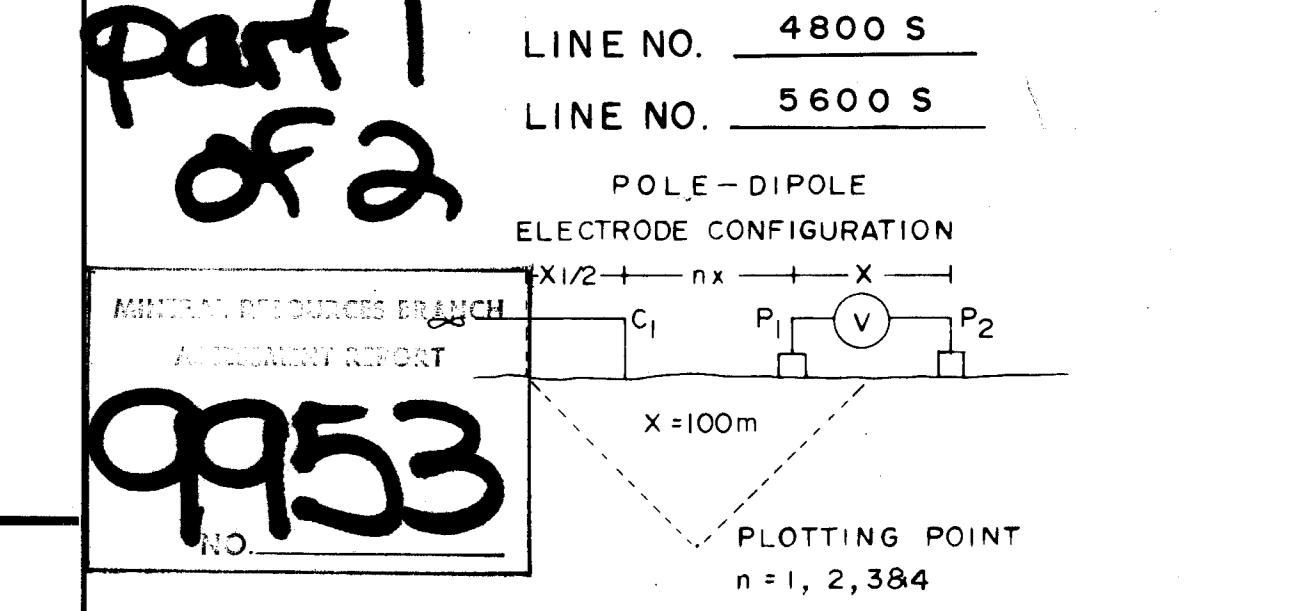


Drawn by:	Traced by:
Revised by	Date
Revised by	Date

**LOCATION MAP**  
**NICOLA M.D., B.C.**

Scale: 1 : 250,000      Date: JAN 1981      Plate 216-81-

COMINCO LTD.  
GUMP GROUP  
NOVA OPTION  
KAMLOOPS M.D., B.C.



CHARGEABILITY (IP) INTERPRETATION  
 STRONG CHARGEABILITY HIGH  
 MODERATE CHARGEABILITY HIGH  
 WEAK CHARGEABILITY HIGH  
 IP HIGH AT FURTHER SEPARATIONS  
 APPARENT RESISTIVITY INTERPRETATION  
 APPARENT RESISTIVITY LOW

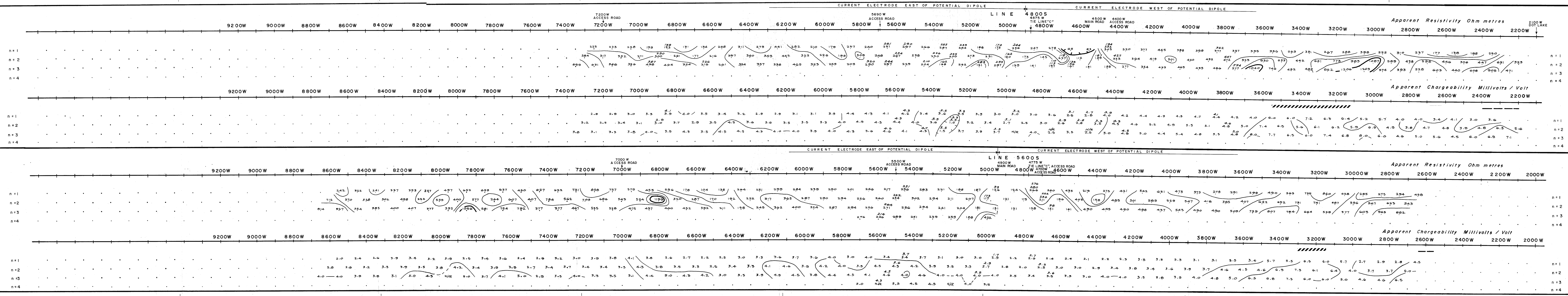
SCALE 1:6000 DATE SURVEYED LINE 4800S JULY 11, 1981  
 LINE 5600S JULY 8, 1981

CONTOUR INTERVALS:  
 APP RES - 1, 1.5, 2, 3, 5, 7.5, 10 ohm metres APPROVED  
 APP CHARG - 2.0 MV/V

DATE

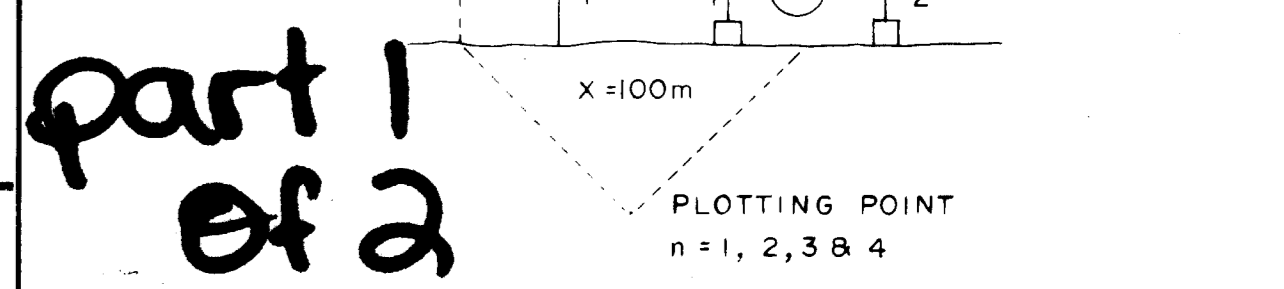
TRANSMITTER - HUNTEC 7.5 Kw UNIT  
 RECEIVER - IPR-8

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



COMINCO LTD.  
GUMP GROUP  
NOVA OPTION  
KAMLOOPS M.D., B.C.

MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT  
LINE NO. 6000 S  
LINE NO. 6400 S

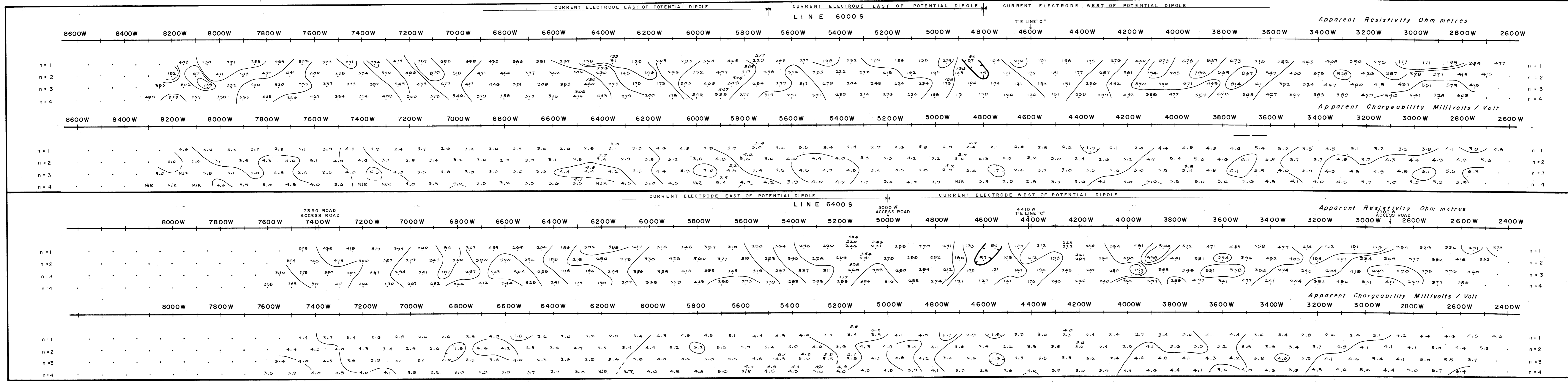


CHARGEABILITY (IP) INTERPRETATION:  
 STRONG CHARGEABILITY HIGH  
 MODERATE CHARGEABILITY HIGH  
 WEAK CHARGEABILITY HIGH  
 IP HIGH AT FURTHER SEPARATIONS  
 APPARENT RESISTIVITY INTERPRETATION:  
 APPARENT RESISTIVITY LOW

SCALE 1:6000 DATE SURVEYED LINE 6000S JUNE 29/81  
 JULY 6, 7, 8 /81  
 DATE SURVEYED LINE 6400S JUNE 29/81

CONTOUR INTERVALS:  
 APP RES - 1, 1.5, 2, 3, 5, 7.5, 10 ohm metres  
 APP CHARG - 2.0 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 6400 S



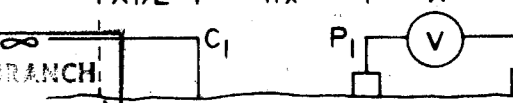
# COMINCO LTD. GUMP GROUP NOVA OPTION KAMLOOPS M.D., B.C.

Part 1 of 2  
MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT  
NO. 9953

LINE NO. 6800 S

LINE NO. 7200 S

POLE-DIPOLE  
ELECTRODE CONFIGURATION



PLOTTING POINT  
n = 1, 2, 3 & 4

CHARGEABILITY (IP) INTERPRETATION  
  
 APPARENT RESISTIVITY INTERPRETATION

SCALE 1:6000 DATE SURVEYED LINE 6800 S JUNE 24, 25/81

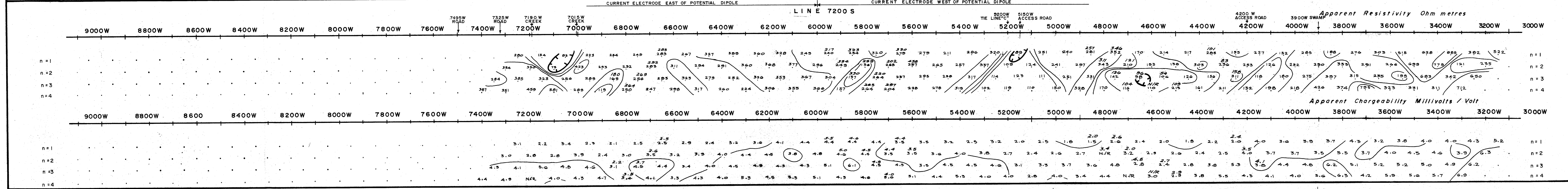
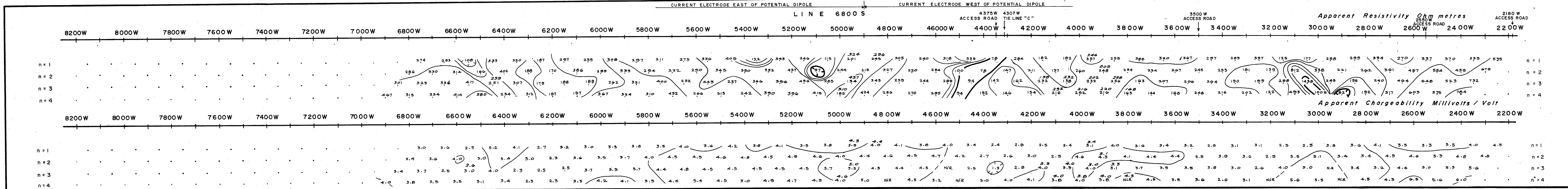
CONTOUR INTERVALS: APP RES - 1, 1.5, 2, 3, 5, 7.5, 10 ohm metres APPROVED \_\_\_\_\_

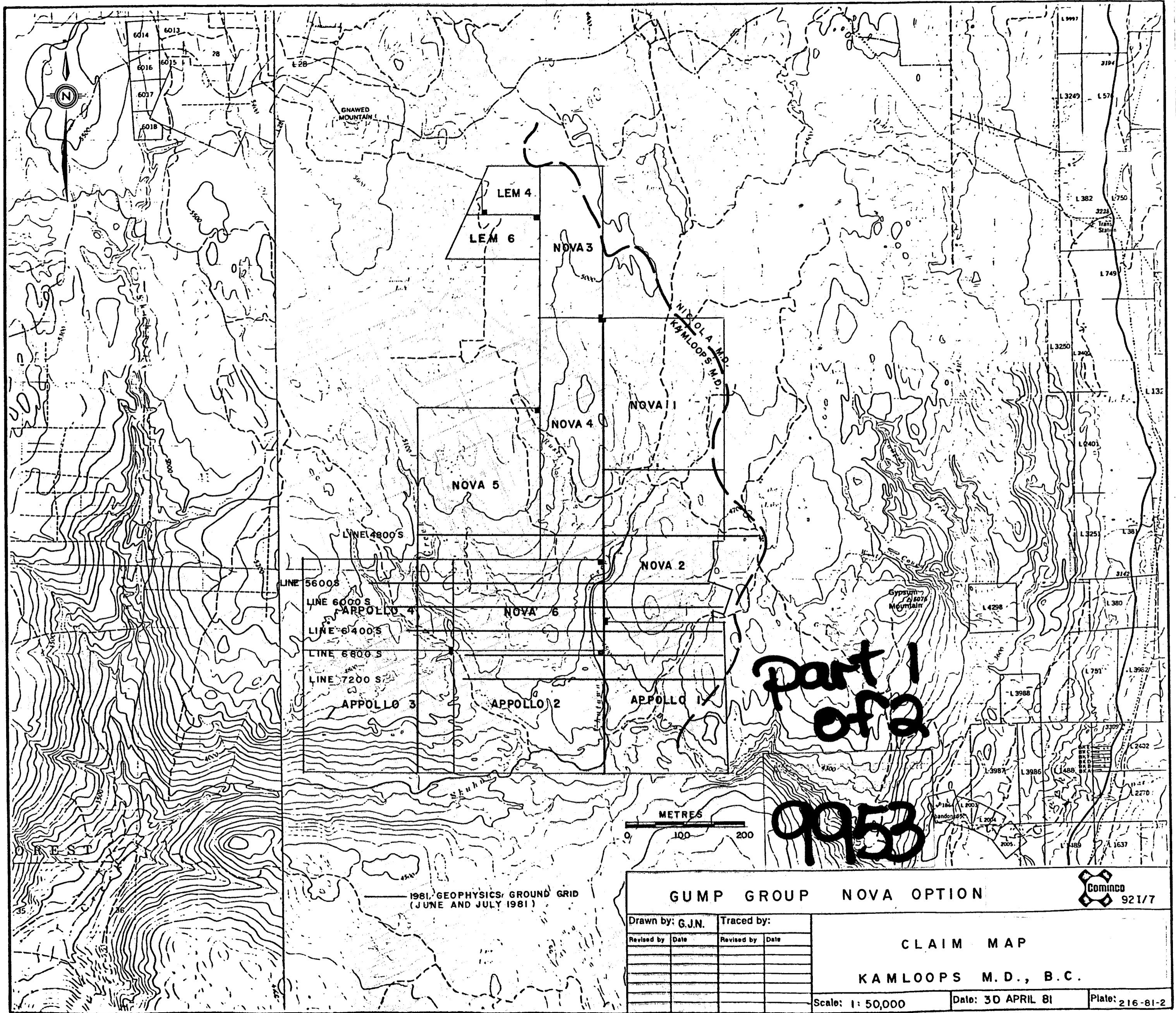
APP CHARG - 2.0 MV/V DATE \_\_\_\_\_

TRANSMITTER - HUNTEC 7.5 Kw UNIT

RECEIVER - IPR-8

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






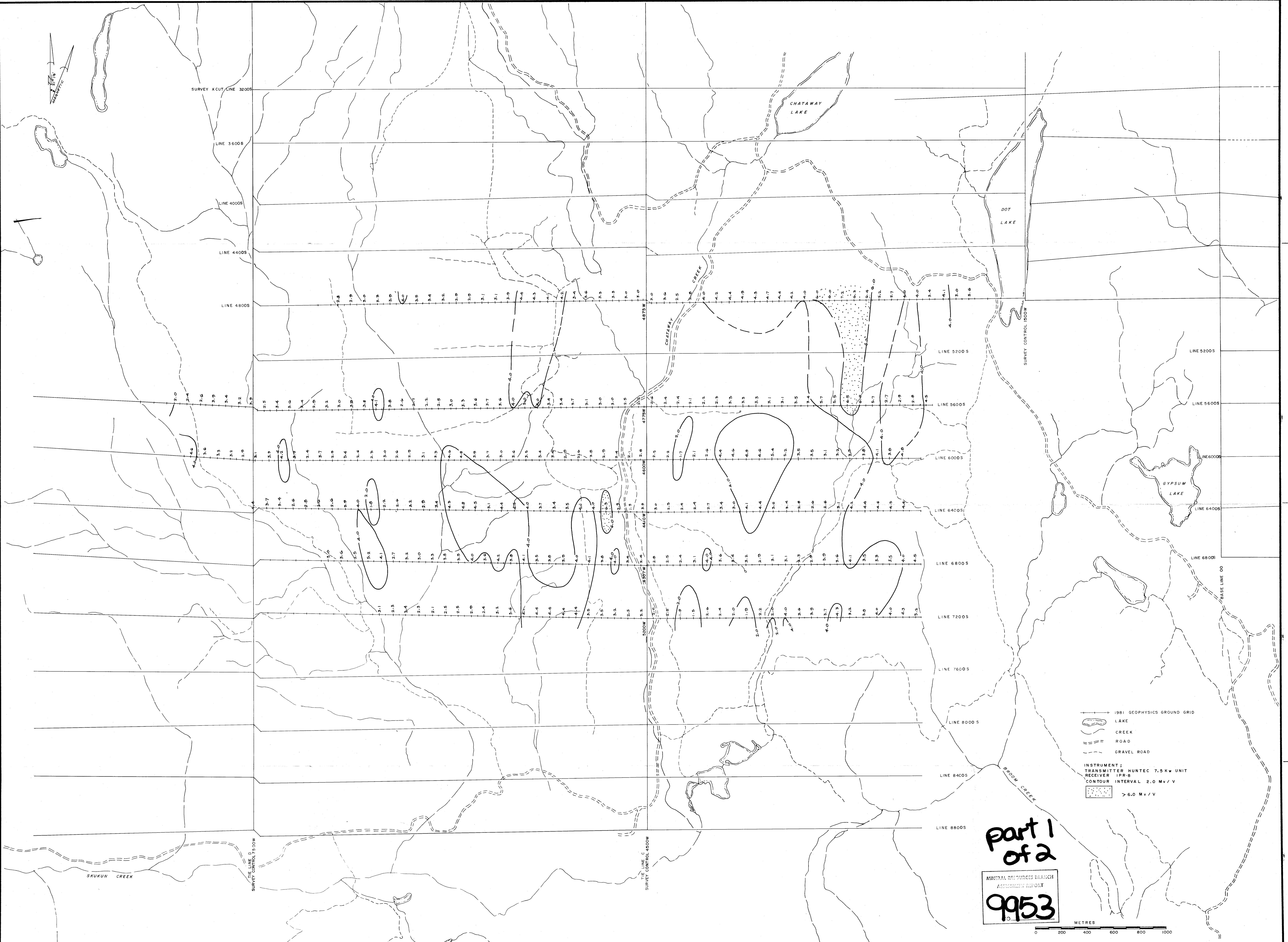
Part 1  
of 2  
9953

1981 GEOPHYSICS GROUND GRID  
(JUNE AND JULY 1981)



<b>GUMP GROUP NOVA OPTION</b>				 921/7	
Drawn by: G.J.N.		Traced by:		<b>CLAIM MAP</b>  <b>KAMLOOPS M.D., B.C.</b>	
Revised by	Date	Revised by	Date		
Scale: 1:50,000		Date: 30 APRIL 81		Plate: 216-81-2	





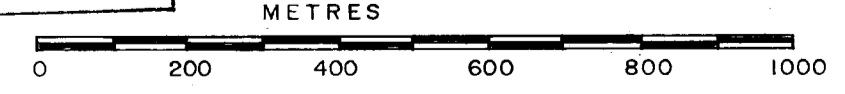
1981 GEOPHYSICS GROUND GRID  
 LAKE  
 CREEK  
 ROAD  
 GRAVEL ROAD

INSTRUMENT:  
 TRANSMITTER HUNTEC 7.5 KW UNIT  
 RECEIVER IPR-8  
 CONTOUR INTERVAL 2.0 Mv/V

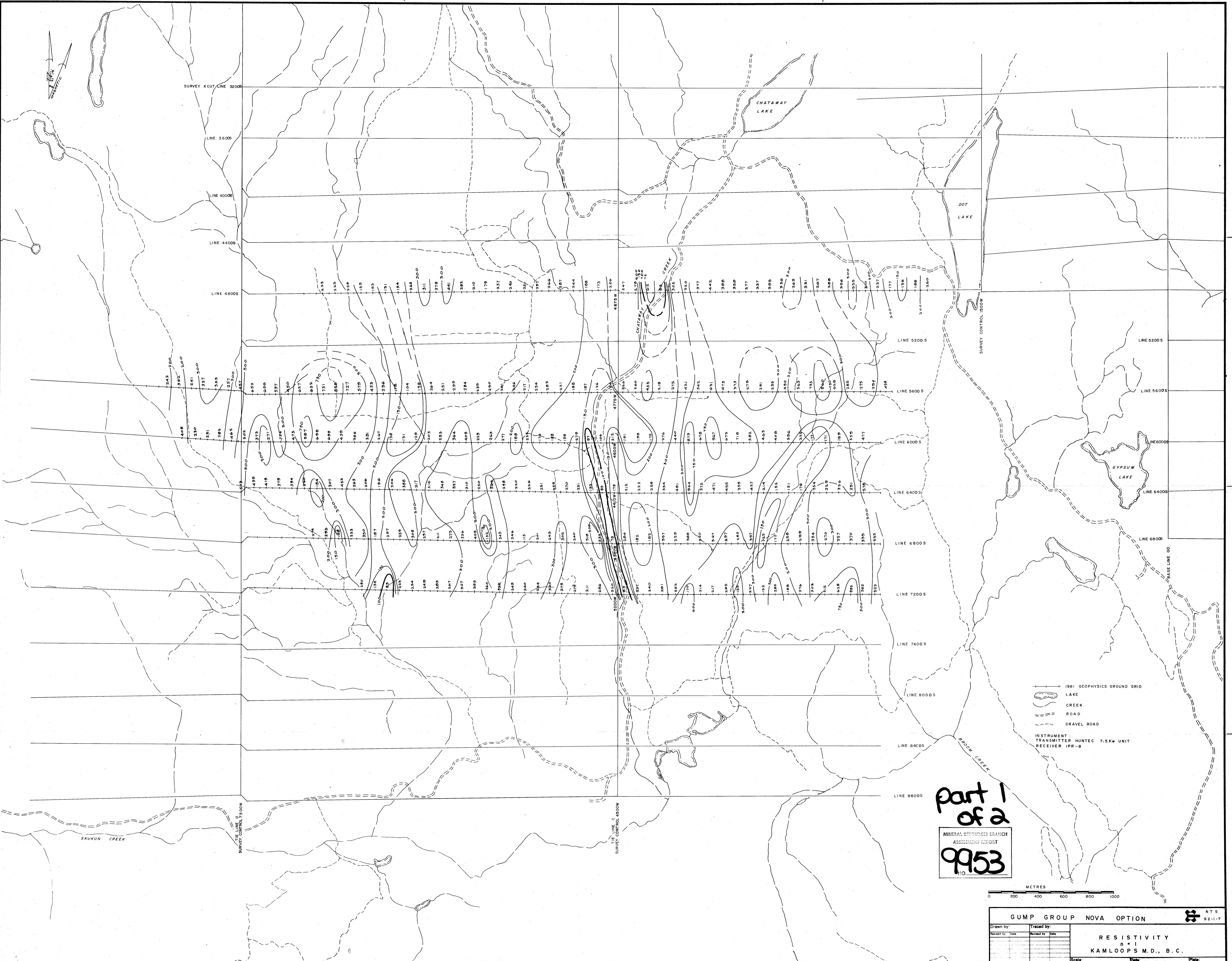
**> 6.0 Mv/V**

**part 1 of 2**

MINERAL RESOURCES BRANCH  
 ASSESSMENT REPORT  
**9953**



GUMP GROUP NOVA OPTION		NTS 92-1-7	
Drawn by:	Traced by:	CHARGEABILITY	
Checked by:	Reviewed by:	n = 1	
		KAMLOOPS M.D., B.C.	
Scale: 1:10,000	Date: OCTOBER 1981	Plate:	FORM 210 (REV. 81-3)

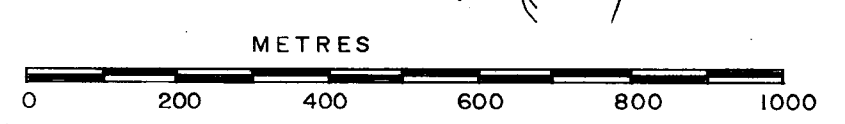


- 1981 GEOPHYSICS GROUND GRID
  - LAKE
  - CREEK
  - ROAD
  - GRAVEL ROAD
- INSTRUMENT:  
TRANSMITTER HUNTEC 7.5KW UNIT  
RECEIVER IPR-8

**Part 1**  
**of 2**

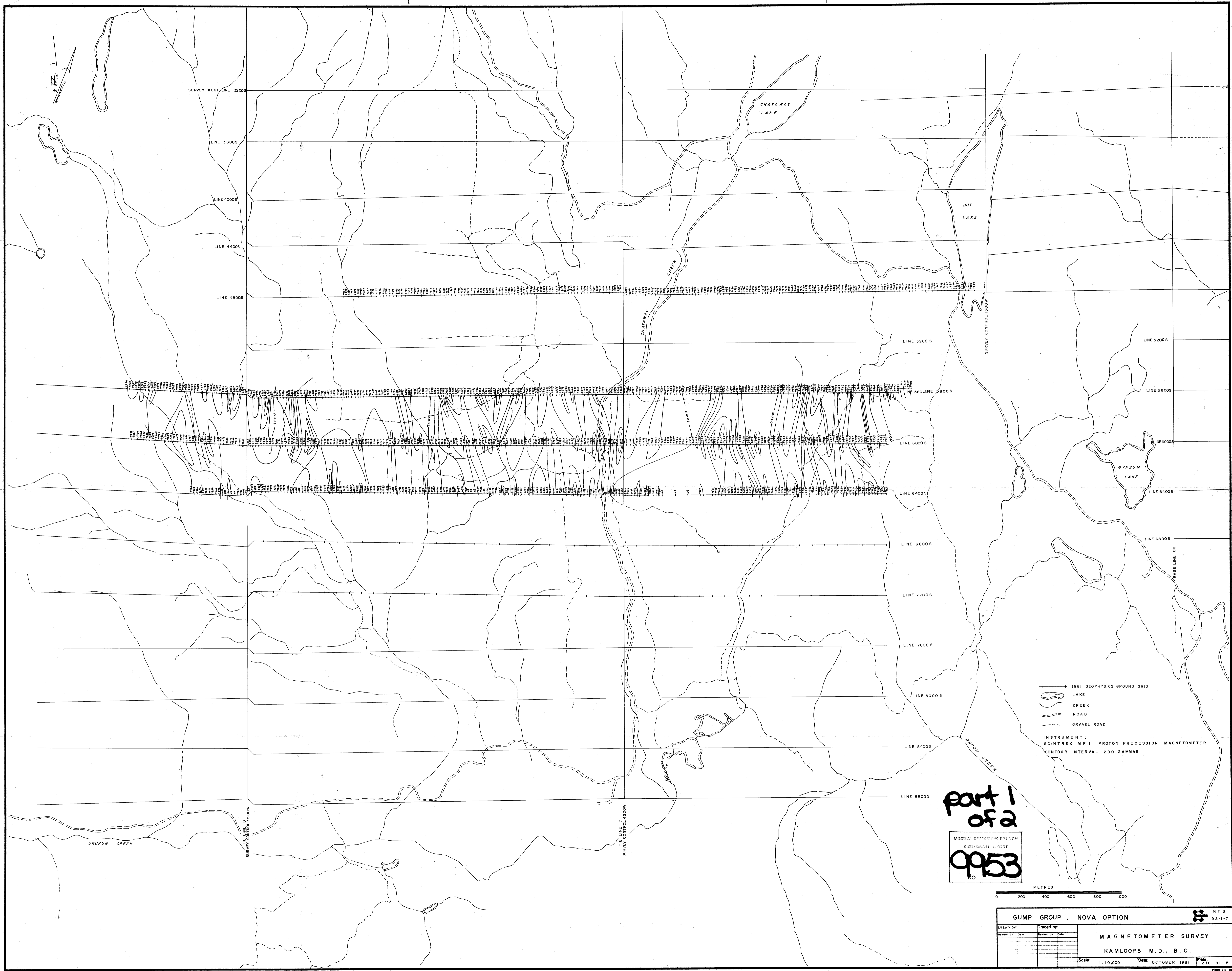
MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT

**9953**  
NO.



GUMP GROUP NOVA OPTION		
Drawn by:	Traced by:	
Revised by:	Revised by:	<b>RESISTIVITY</b> <b>KAMLOOPS M.D., B.C.</b>
Scale: 1:10,000	Date: OCTOBER 1981	FORM 916-81-4 <small>FORM 916-81-4</small>

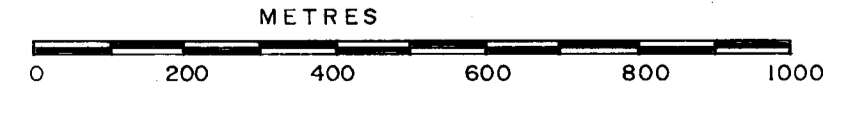




- +— 1981 GEOPHYSICS GROUND GRID
- LAKE
- CREEK
- ROAD
- GRAVEL ROAD

INSTRUMENT:  
SCINTREX M P II PROTON PRESSION MAGNETOMETER  
CONTOUR INTERVAL 200 GAMMAS

**part 1  
of 2**  
MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT  
**9953**



GUMP GROUP, NOVA OPTION		NTS 92-1-7	
Drawn by:	Traced by:	<b>MAGNETOMETER SURVEY</b>	
Revised by:	Revised by:		
		KAMLOOPS M.D., B.C.	
Scale:	1:10,000	Date:	OCTOBER 1981
		Plate:	216-81-5